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The Railways and the Nation

CHAPTER I

INTRODUCTION

THE spectacle of a splendidly equipped, partially utilised, and but moderately profitable means of transit like the British railway system, running through miles of fertile but empty country, and connecting congested cities and towns where people lack the means of healthy physical subsistence, is one among many examples of national waste which may be attributed to the lack of system in our social arrangements. From the national point of view a well-ordered transit system is a vital necessity, but the transit system of the country has been allowed to grow up without any attempt at scientific arrangement, with the result—as might have been expected—that in transit matters we now have a chaos of conflicting interests and anomalies with which it will require a very courageous Government to interfere. That the problem of inland transit will have to be faced, and in no half-hearted or uncertain manner, is becoming increasingly obvious, even to those who deprecate Government interference in such matters. To leave the question alone any longer, or to pursue the time-honoured policy of tinkering, must imperil the future prosperity of the nation.

What to the student of railway economics is almost self-evident truth has yet, after seventy years of railway

experience, to be completely applied in practice, namely, that a transport system cannot achieve its maximum public utility except as an unbroken unity, and unless the charges for its use are so arranged as to attract the maximum number of traffic units. In the United States of America, where railway questions have been more scientifically studied, and where these principles together have found wider application than elsewhere, railways have proved capable of carrying cheaper than water routes. In Germany, although the principle of unity of management has been recognised in the nationalisation of the Prussian and other State lines, the hide-bound notion of equal mileage rates, slightly modified by economic compulsion and fiscal policy, has prevented the full utilisation of the capital resources of the railways, and led to the expenditure of vast sums of money on the improvement of waterways, much of which might have been saved had a more elastic railway tariff been adopted. In the United Kingdom, public sentiment exercised through Parliament has been mainly responsible for the poor use of the railway accommodation. It is no exaggeration to say that hundreds of millions of British railway capital have been extinguished by useless wear and tear and by natural decay, instead of in public service, because of a blind belief in the advantages of competition, and because of a system of basing charges which at the best has been a distorted attempt to charge everybody alike. The pressure of economic necessity has ever been forcing our railway managements towards consolidation of interests, and at the same time compelling them to adopt in pursuit of their own gains a system of fixing charges which, extended to its logical completeness, would correspond in some measure to the formula : "From each according to his ability and to each according to his needs." This logical completeness demands one indispensable condition for its fulfilment, namely, the unification of the whole railway system.

Railway charges should be sufficiently elastic to reach every available traffic unit which is willing to pay more than its own specific movement expenses ; but Parliament, in effect, has enacted that a good deal of traffic must not

travel because the charges which it could afford to pay could not be applied all round. Experience has proved beyond question that unless discriminations are applied much business must be left ; and further, that if such traffic be not carried the charges for what is carried must necessarily be made higher. The trading public have persisted in advocating an impossible equality, and have good reason to be thankful that their views have not altogether prevailed. The complete application of their ideas of equality would have ruined the railway business, and sooner or later have made it impossible for anything to be carried by railway at all.

The main point to grasp in relation to railway charges is that a large proportion of the expense (about 40 per cent.), as well as interest on capital, runs on whether much or little business is done, and that therefore it is better all round for certain traffic units to be encouraged by relatively lower charges, and thus contribute to these invariable expenses rather than that the whole burden should be borne by others. The railway business is somewhat analogous to the business of the Post Office, which undertakes to convey a letter four miles for a penny, but makes no higher charge for conveying a letter 400 miles. Because of the profit it makes on the short distance packets, and because of the enormous number of all kinds which it conveys (and it conveys enormous numbers because it makes a low charge per packet), the Post Office is able to carry a letter 400 miles for a penny. If public opinion were to apply the same reasoning to the Post Office which it has to railways, and was successful in preventing the carrying of letters 400 miles except for 100 pence, few such letters would be carried, and in the end the charge for carrying letters four miles might conceivably have to be increased. The lowest possible charges per unit in order to attract the maximum volume of business, and something in the nature of a monopoly, are essential to complete success in both cases.

Although railways have cheapened inland transport, charges based on distance have assisted to aggravate rural depopulation and the overcrowding of urban centres during a period of great industrial expansion, when, for

the sake of the general well-being, it would have been better by cheaper and absolutely uniform charges, irrespective of distance, to have provided change for the town worker, and by the same means have encouraged the development of the country's agriculture to meet the increased urban consumption. If this had been done, the population might have spread itself more over the country and urban and rural prosperity have supplemented each other, while the nation might have avoided the dangers of almost complete dependence upon foreign sources of food supply.

The early anticipations in regard to the railways may be gathered from the following extract from *Chambers's Edinburgh Journal* of April, 1839 :—

"Railways will serve to develop resources and excite a traffic of which, in the present infancy of their establishment, we can form no adequate idea. It may be safely averred that there is no part of the United Kingdom which does not possess some latent capabilities that may be advantageously explored and brought into action. One boasts of its romantic beauty, another its climate, a third its abundance of the purest water, a fourth its mines, a fifth its population, a sixth its rural produce, and so on without end, and each containing something of which the others are less or more deficient, and which it would be highly desirable to bring into use for the general good.

"Taking this extended view, what an immense stock of exchangeable and inexchangeable wealth does our country contain, which is at present all but useless for lack of a ready means of communication! It is distressing to think that, from the want of some ready means of access, there are certain inland districts of our own land less available for purposes of commerce than places situated on the seashores of distant continents; for, according to the existing modes of transport, goods may be sent a thousand miles by sea at a much less expense than they could be carried by wagon twenty miles on land. Railways, although not reaching every corner of the country, will quickly remedy this evil. They will excite the energies of widespread districts through which

they pass, and in some respects give to inland towns that degree of accessibility, and consequently opulence, which has till the present day belonged only to towns on the coast. The increase which will take place in the national resources, when the system of railways shall be completed, it is impossible to calculate.

"Another very observable benefit from railways will consist of the breaking down of local prejudices. At present certain towns maintain unworthy jealousies of each other. By residing constantly in one spot our minds become narrowed; we learn to look upon our own gin-horse tract as all the world, and foolishly imagine that the usages and habits of thinking peculiar to our fellow mortals must necessarily be wrong, and therefore liable to reproach and sarcasm. Railways, by bringing towns into more close neighbourhood with each other, and introducing their respective inhabitants to a mutual acquaintanceship, will tend greatly to soften these jealousies and local prejudices. Where even no such feelings have ever existed, the most beneficial intercourse cannot fail to be established betwixt different seats of population. Let us take the case, for instance, of Newcastle and Edinburgh. Excepting for some slight commercial connections and casual friendships, the inhabitants of these cities know nothing of each other, yet it would be vastly for the benefit of both that they should be reciprocally acquainted; but without a railway it is clear that no such intimacy can take place. In this manner, whether we view railways as a means of improving the mercantile resources or the moral qualities of the people, they cannot fail to be productive of an incalculable degree of good to the whole mass of society."

After reading that extract one is tempted to ask, notwithstanding its accuracy as a forecast in some respects, what the writer would think were it possible for him to come back and learn that after seventy years of railway experience many of his delightful anticipations were still unrealised. Imagine his astonishment on hearing that, although Edinburgh and Newcastle have been connected by railway for more than sixty years, the people

of those cities, owing to the cost of transport, are still comparative strangers, and that places of romantic beauty, although now within easy reach of the railways, are still inaccessible to great masses of the people for the same reason! What would be his reflections when told that much of the exchangeable and inexchangeable wealth which our country contains is still all but useless, not for lack of ready means of communication, but because, having been provided in great abundance, the charges for their use are such that they cannot be fully utilised? If it was distressing in 1839 to reflect that there were certain inland districts of our own country less available for purposes of commerce than places situated on the seashores of distant continents, owing to the then existing means of transport, what would be his opinion of the conditions under which British railways afford cheaper transport to foreign than to British producers? When he witnessed the common spectacle of splendidly equipped passenger trains capable of carrying 300 and 500 passengers running with average loads of 50, and was informed that many people can only afford a railway journey once or twice a year, would he not utter a note of wonder and exclamation? When, instead of a healthy, prosperous, intellectual population spread over the face of the country, he found thousands of physically and mentally deteriorating specimens of humanity cooped up in sordid surroundings which they seldom leave, while millions of acres of land were desolate through lack of human activity, and the life-giving ozone swept over silent and tenantless spaces, would it be possible to excite his admiration for twentieth century institutions and intelligence?

It may be suggested that the writer of the article from which an extract has been quoted entertained extravagant expectations, and that the difference between them and the reality may be accounted for by the exaggerations of an excited imagination. There is not the slightest ground for such a view. There is every reason to believe that had there been less State interference with the private management of railways, or better still, absolute State management along with better

land laws, which a more elastic railway administration would have forced upon public attention, these early expectations would have been more than fulfilled. A magnificent engine of civilisation has hitherto been spoilt by reckless speculation and competition and an antiquated system of fixing charges imposed by law, all of which have hampered railway development, inflicted loss upon the proprietors, and limited the power of railways to serve the public.

CHAPTER II

THE PRESENT POSITION

At the present time British railway administration is being criticised from three separate quarters. The investors, the public, and the employés are equally dissatisfied, and the nature of their complaints is such that under present conditions it seems impossible to satisfy one group without aggravating the grievances of the other two.

Dividends and stock values have been declining for several years past, and although great economies in traffic working have been introduced and there have been a few good trade years, the downward tendency has merely been held in check, so that the return of lean years will, apparently, drive values lower still.

The trading public are voicing more vehemently than ever a complaint which has never been completely silenced, namely, that charges for the conveyance of goods are unequal, and, moreover, so high in comparison with those of other countries that the foreigner has a distinct advantage, and one which is enhanced by the annoying fact that even on the home railways the goods of the foreigner are carried at lower rates than those of the home producers. The ability of railway experts to justify present charges has little effect upon the temper of the trading community, who are convinced that such a state of things cannot continue without permanently injuring British commerce, and a strong movement has set in for more effective State control,

which in some cases has taken the form of a demand for railway nationalisation.

The employés, in sympathy with the general movement of labour throughout the country, are constantly pressing their demands for better conditions and remuneration, and recently a strike was only averted by the intervention of the President of the Board of Trade and the appointment of Conciliation Boards.

Having grasped this brief statement, the reader will be able to appreciate a more extended outline of the situation as regards—

(1) The investors.
(2) The public.
(3) The employés.

From the point of view of the investors, interest naturally centres round the question of dividend.

Dividend depends upon (1) the amount of capital invested; (2) the amount of net receipts after payment of expenses. Net receipts depend upon (*a*) the amount of gross receipts and (*b*) the amount of working expenditure. The term "capital expenditure" is applied to money spent on additions to the permanent establishment and equipment, as distinct from replacement. The term "working expenditure" is applied to all money spent in operating the railway as a whole. It embraces not merely the wages of engine drivers, firemen, station staff, &c., but cost of all repairs, rates and taxes, salaries of head office officials, stores, &c. Separate chapters have been allotted to a more detailed discussion of both capital and working expenditure, but it may be well at this point to call attention to the obviously important relation between the amount of total receipts and the amount of working expenditure, which relation expressed in figures is commonly termed "the percentage of working expenditure." It will be understood from what has been said that a low percentage of working expenditure to total receipts indicates a good margin, and a high percentage of working expenditure a poor margin, of receipts over expenditure. It will also be seen that the percentage of working expenditure has two aspects:

(1) a railway aspect, that is, it may indicate whether or not the railways are being worked economically; (2) a public aspect, that is, it may indicate whether the public are paying high or low charges. For example, it is possible for a high percentage of working expenditure to exist while the public are paying high charges if the railways are being extravagantly conducted, but if the railways are being economically worked a high percentage of working expenditure, apart from the effect of prices of labour and materials which the managements cannot control, indicates that the public are being cheaply served. It is the advance of the percentage of working expenditure to total receipts during the past ten years from 57 to 63, along with the reduction in net receipts and dividend which it implies, coupled with the conviction that the rise is due to increased expenditure, which has brought the railway investors into line with the public and the employés in demanding a change.

The following table shows the progress of various items of revenue and expenditure during the years 1897 to 1907 :—

	Increase per cent.
Number of passengers carried (exclusive of season ticket holders)...	22
Passenger revenue (including receipts from season tickets, parcels, and mails)	26
Tons of goods carried	38
Goods revenue	28
Gross revenue	29
Working expenditure	44
Net revenue	10
Capital expenditure (less nominal additions) ...	17

These figures appear to show that the present financial difficulties of the railway are due to (1) an increase in working expenditure; (2) a decline in the rate of goods revenue progress as compared with tonnage progress. As regards capital, borrowing appears at first sight to have been overdone, as the percentage of capital increase is well above the percentage of increase for net receipts. This, however, is an unsafe inference, as

the serious increase in working expenditure and the falling off in goods revenue as compared with tonnage, both of which have adversely affected net receipts, could scarcely have been anticipated. These matters are more fully discussed in the chapter on working expenditure.

The position as above disclosed has led to the demand by influential bodies of railway investors for far-reaching reforms. Briefly, these demands are for (1) better utilisation of capital resources by more economical handling of traffic; (2) substitution of co-operation for competition between rival lines, and the consequent elimination of unnecessary services; (3) better statistics, the object of the latter being to excite rivalry in economy between the different managements. The movement began in 1899, and although at first it met with little sympathy from railway boards, its authors persisted, and to some extent have prevailed. More economical methods of handling traffic—particularly goods traffic—by the use of more powerful locomotives, longer trains, and better wagon loads have been introduced, and an enormous amount of freight train mileage saved; but the reform, which is obviously in the right direction, has been attended with some difficulty owing to the continued operation of competition and diversity of management, and probably owing to the fixed capital accommodation having been designed for other conditions. Delays to freight trains, especially on crowded lines, have been frequent, and the amount of fuel consumed has increased considerably in spite of the reduction in freight train mileage. The recognition of this difficulty has led to a decided movement for combination, as witnessed in the working agreements between the London and North Western and Lancashire and Yorkshire, the North British and Caledonian, the London and North Western and Midland, and the proposals, which fall little short of amalgamation, of the Great Northern, Great Central, and Great Eastern companies.

The view which the public take of the situation is at present summed up in the demands of traders for lower freight charges and the abolition of preferences.

One piece of evidence, typical of much more that might be given, will be sufficient in this connection.

At the last annual meeting of the Association of Trade Protection Societies for the United Kingdom the desirability of the appointment of a Royal Commission to consider the whole question of traders' grievances against railway companies was discussed. The importance of railway carriage in relation to trade was emphasised, and examples of railway charges were given with a view to showing their inequality. It was alleged that in some cases the companies were actually receiving as much as 40 per cent. more than they were entitled to, and the further allegation was made that German hardware was delivered in Birmingham from Hull at one half the rate charged to English manufacturers. The delegate who made the latter complaint went on to say that unless they obtained better terms, the time would come when they would have to ask the Government to nationalise the railways. The freight rates problem is fully discussed in Chapters VIII., IX., and X.

The facts of the present situation in regard to the employés have been forcibly put by Mr. R. Bell, M.P. Writing in the *Manchester Daily Dispatch* on November 4, 1907, Mr. Bell said: "There are 100,000 men on the railways of the United Kingdom whose standard weekly wage is less than £1 per week. One half of the railway employés come between the 20s. and 30s. limits, while only 11 per cent. of the total receive more than the latter figure. The figures (compiled from actual returns from the men) show that nearly two-thirds of the men are included between 17s. and 25s., these figures including the wages of most of the firemen, signalmen, and shunters. The largest group is at 21s., nearly 21,000 being in receipt of a guinea a week as a standard weekly rate. The average wage is, however, higher than this figure, owing to the relatively large groups at the top of the scale. The average for the United Kingdom is 23s. 2d., but no less than 60 per cent. receive less than that figure."

The foregoing figures are based on returns received

from 259,000 men. Analysing the figures supplied by these men in regard to hours, Mr. Bell compiled the following table :—

Number of hours per day.	England and Wales.	Scotland.	Ireland.	United Kingdom.
8	15,700	1,710	110	17,520
10	149,060	10,940	3,969	163,960
12	43,600	14,510	3,440	61,550
Over 12	1,080	430	50	1,560
Total ...	209,440	27,590	7,550	244,590
Hours not stated	12,240	1,110	1,340	14,690

The position of the outdoor staff, as indicated by the evidence of Mr. Bell, should be studied in conjunction with the future prospect held out by the railway managements before the full gravity of the situation from the workers' point of view can be fully appreciated. The following is taken from the *Railway Gazette* of September 4, 1908 :—

G.E.R. Uniform Staff.—The directors of the Great Eastern Railway have recently issued the following notice to the staff, signed by Mr. R. P. Ellis, Superintendent of the Line : "The staff are aware that for many years the conditions of their service have steadily improved, although for some time past the traffic has been depressed and expenses have greatly increased, and the directors are much surprised that at a time like the present, with a constantly falling revenue, a section of the men should continue to urge the extravagant demands which were submitted by them on May 18th last. As already explained, it is impossible to accede to these demands ; on the contrary, I am instructed, in view of the company's present financial position, to revise the conditions of service of the uniform staff of my department, and I hereby give

notice that the following alterations will come into force on January 1st next: (1) The special advance which was given commencing January, 1907, *i.e.*, the 1s. advance to certain grades after eight years' service and a further 1s. after ten years' service, will be withdrawn. (2) The scale advances to the uniform staff will be suspended, and, unless the company's financial circumstances improve, it may be necessary to reduce to the lowest figure on the scale the pay of those now receiving the higher rates. (3) When shunters and pointsmen perform Sunday duty, a day off will be given in the week, when traffic requirements will allow of it, in lieu of a seventh day's pay. (4) The arrangement of allowing full pay for holidays will be discontinued."

The attitude of the Great Eastern company is apparently part of a general movement by all the railway companies. The Chairman of the Midland company at the half-yearly meeting in August, 1908, is reported to have made the following reference to the situation :—

"Under these circumstances, when almost every trade is suffering from depression, and, consequently, I have to bring to you a very disappointing report of the half-year's results, when we have been compelled to part with men, and, I am afraid, shall be compelled to part with many more, it seems strange, and I should have thought ill-advised, for practically the whole of our wages staff to be demanding, through the Conciliation Boards, increased remuneration; and, as we are unable to concede these demands, I presume the arbitrator will decide between us."

The dissatisfaction of the employés is not confined to the outdoor staff. At a recent conference of railway clerks, called to consider the way in which an appeal for improved conditions had been dealt with by the company concerned, it was reported that no clerks were being given advances beyond 18s. or 20s. per week, and in some cases they had to work over fourteen hours on Sundays without payment or equivalent time off.

What do these things portend? Opinions are heard on all sides that railways have seen their best days, and are destined to be superseded, possibly by improved road

motors. Such opinions cannot be the result of careful consideration. Railways possess, and so far as can be seen, will continue to possess one supreme advantage over road motors, that is, their ability to carry additional passengers and goods at little or no extra cost. The unification of the British railway system and the full utilisation of the present capital resources would bring cost per traffic unit down to such a figure that, in comparison, transit by road motor would in most cases be considered an extravagance. The suggestions now being made that special roads should be constructed to accommodate the new means of transit should not be seriously considered until all attempts at scientific railway administration have failed. Motor traffic will doubtless develop, but it is in the interests of economy and efficiency that it should develop not as a substitute for, but as supplemental to a national railway system, in which case, instead of tending to depreciate the railway assets of the community, it would probably inaugurate a new era of railway prosperity. If the railways continue to be operated as separate private concerns, and capital and working expenditure continue to be wasted, it is likely that transit charges will be maintained at figures which will invite road motor competition on a large scale—a prospect which implies not only a great waste of public wealth, but a disintegration instead of a co-ordination of the transit system of the country. These matters deserve the serious attention of every thinking member of the community.

CHAPTER III

CAPITAL EXPENDITURE

ACCORDING to the Board of Trade Returns the fully paid-up capital of the railways of the United Kingdom at the end of 1907 amounted to 1,294 millions, but as this includes nominal or paper additions which do not represent cash amounting to 196 millions, the sum spent on capital account up to the end of 1907 was 1,098 millions. The effect of the nominal additions may be gathered from the fact that the rate of interest on the total capital for 1907, including nominal additions, works out at 3·47 per cent., while excluding these nominal additions it works out at 4·06 per cent.

Attention may be drawn to two main features of railway finance: (1) The capital account of a railway is never closed, because a railway is a progressive undertaking and is constantly in need of additions and extensions to meet the growing requirements of the public. (2) It is often difficult, and sometimes practically impossible, to decide whether certain items of expenditure should be charged to capital or paid out of revenue.

Taking it for granted that the directorate are thoroughly conscientious, what is their position in regard to items of expenditure which may be charged either to capital or revenue—items which do not naturally classify themselves, and which must be placed according to the views of the parties responsible for the allocation? If the company are doing well, and the board are not being harassed, the dictates of safe finance will direct many of these doubtful items

to debit of the revenue account; but if opposite conditions prevail, an undue proportion of such items may be placed to the capital account, in order that as much net revenue as possible may be declared. Under these circumstances much depends upon the moral stamina of the board. Given a succession of lean years, growing complaints from the proprietors, and a weak board, a good deal of doubtful expenditure may be charged to capital instead of revenue without any wrong intention, and money divided amongst the shareholders which ought to have gone to the upkeep of the concern. This tendency might in the course of time account for a great amount of over-capitalisation. Professor Hadley, President of Yale University, whose authority to speak on railway matters cannot be questioned, states in regard to this point: "Even with the best of intentions on the part of railroad managers these things are hard to decide. When the intentions are not the best it is easy to decide them wrongly and hard to detect the wrong. It will quite frequently happen that the management is far more interested in having a road declare large dividends than in having its capital account on a sound basis. To declare a dividend which they have not earned they must find a pretext for borrowing money. This they usually do by swelling the item of new construction unfairly. If they charge to new construction what really belongs to repairs, they can borrow money for what should really have been paid out of earnings, and apply the money thus unfairly saved to swell the sum available for dividends. This is one among many ways; but it is more common than all the rest put together."

The foregoing quotation is probably more appropriate in regard to American than to English railway administration, and is merely given by way of illustration. It should be pointed out though that the difference between the two countries is not one of facts, so far as finance is concerned, but a supposed difference in commercial morality.

A possible modern English example may be given. When a locomotive is worn out it should be replaced

out of revenue as a renewal. Let it be supposed that on a section of line, the traffic on which was worked by steam locomotives, steam power is wholly or partially superseded by electricity. A power station is erected, it may be, or the electricity may be supplied from an outside source, and the line is equipped for the new mode of traction. The total expense, say, amounts to £100,000. How much of this sum shall be charged to capital and how much to revenue? On the principle that new in the place of old power is a renewal, the greater part of the outlay is a revenue expense. On the principle that shareholders must not be forced to re-invest the earnings of their holding, new capital should be raised to pay for the extra outlay; and then the question as to how much is extra outlay will depend upon the presence or absence of the factors previously mentioned, and in the last resort upon the particular views of a majority of individuals. In the minds of such individuals a conflict is likely to occur between their own personal and temporary interests and the permanent interests of the property. If they are influenced by personal, and therefore temporary considerations, a large part of such expense will be debited to capital account, in order that present returns on investment will suffer as little as possible. If the permanent interests of the property are considered, the revenue account will be debited with the greater part if not the whole of the expense. In the case supposed—the substitution of electricity for steam as motive power—it should be borne in mind that any portion of the expense debited to capital account is a certain and permanent addition to debt, whereas the corresponding increase of earnings to justify it lies in the future and must be estimated. The introduction of electricity to compete with electric tram services, for instance, may result in the recovery of business previously lost, but recovery is not increase. How shall railway directors decide, if placed in this position, what will be the probable effect of such a change; and if they solve this part of the problem, how shall they decide how much of the extra revenue is actual increase of business? These questions and many others cannot

be decided on solid grounds ; they are purely speculative, and call for large provision out of revenue.

It can scarcely be urged that mistakes in financing one way may be balanced by mistakes the other way. When things are going well directors of railways, being human, are apt to forget that mistakes may have been made in the past, and divide all they possibly can amongst the proprietors, upon whose good opinion they depend. Moreover, they are liable to be influenced by the conduct of rival concerns. The same influences are at work amongst railway companies as amongst individuals. Few persons like to be thought worse off than they really are ; the temptation is to appear a little better. One may say that if railway directors have never been influenced in these matters by outside pressure, and have made no errors of judgment, the present railway capital, apart from unnecessary expense imposed upon the business by speculation and competition, and apart from nominal additions, represents real value. If they have been so influenced and have made mistakes, an amount of money included in the capital figures according to the extent in which these things have happened represents no value at all.

Professor Hadley has a further significant word on this point. He stated in 1885 : "It is impossible to avoid a suspicion, which the secrecy of English railroad accounts prevents us from proving or disproving, that certain leading English railway companies have been in past years paying dividends out of capital : dividing as large a proportion of gross earnings as possible, swelling the construction account unfairly, and borrowing money for expenses which should have been paid out of revenue."

The object of what has been said on this point is not to suggest irregular finance, but to point out the difficulties and dangers with which railway boards have to contend, owing to the fact that the business must be directed so as to secure the private and therefore temporary interests of individuals instead of the permanent interests of society.

The following extracts from speeches made by the

Chairmen of the London and North Western and Midland companies a few years ago afford further confirmation of the preceding arguments :—

Lord Stalbridge, for the London and North Western company, was reported as follows : "It may interest you to know that since this company took over the old London and Birmingham railway they have charged to revenue £1,854,000 against their carriage stock, although that stock to-day is of greater value than when it was originally laid down. Take another instance. If you look at the question of shop alterations during the last ten years, we have charged to revenue the sum of £190,000 under this head, though nearly all the work has been of an additional character, and therefore would by many companies have been charged to capital."

The Chairman of the Midland company was reported as follows : "During the last half-year we have built ten very large passenger engines. They have cost about £30,000. They have been built to replace ten engines of an older and smaller type, which cost about £23,000. The whole of the £30,000 has been charged to revenue. When those engines were going to be put upon the line Mr. McDonald, who is responsible for its safety, came and advised us that certain bridges should be renewed. Your board sanctioned that the bridges should be pulled down and put up as stronger and much more expensive structures. This work has been done, and the whole has been charged to revenue."

The fact that the directors of the London and North Western and Midland companies deliberately charged to revenue certain expense which was clearly capital expense, and found it necessary to so inform the shareholders, confirms what has already been said, and invites the suspicion that their action may have been a corrective for possible errors in an opposite direction. If the boards of those two companies were absolutely certain that all previous revenue payments had been met from that source of income, and not out of capital, the extra burdens which they placed on the revenue account, and which amounted to a gift of present shareholders'

money to future shareholders, were inexcusable. If the boards of other British railways have taken similar steps to correct possible errors of finance, there is little ground for the charge of over-capitalisation through bad finance. These two companies, however, have been prosperous, and have had opportunities of correcting mistakes out of handsome surplus revenues. Most other companies have not been so favourably placed.

The following table, compiled from the Board of Trade Returns, shows the growth of capital expenditure per mile for the United Kingdom since 1870 :—

Year.	Capital expenditure per mile.
1870	£34,106
1880	40,613
1890	44,710
1900	53,809
1901	54,152
1902	54,932
1903	55,071
1904	55,593
1905	55,710
1906	55,798
1907	56,000

A few words of explanation are necessary in regard to these figures. The increasing average capital charge per mile of railway is accounted for to a considerable extent by :—

(1) Widenings, such as conversion of single into double and double into quadruple track, which do not increase the mileage distance.
(2) Extension of other accommodation, such as stations, depôts, warehouses, &c.
(3) Additions and extensions are chiefly required where they are most costly, that is, in the vicinity of large towns. Traffic outgrows accommodation most rapidly at those points where alterations are most expensive.
(4) Additions to rolling stock necessitated by increased business.

(5) Improvements in passenger rolling stock by provision of dining, luncheon, and sleeping cars, lavatory accommodation, and better heating and lighting.

(6) The figures include nominal additions to capital amounting to 196 millions, most of which have been added since 1870. There were large stock conversions in 1876 and between 1890 and 1900.

Deducting the nominal additions off the latest capital figures, and making an allowance for the nominal amount added prior to 1870, capital expenditure per mile has increased during 37 years by about 45 per cent. while the rate of returns on investment has declined about half of 1 per cent. The fact that the rate of interest on investment has declined no more than half of 1 per cent., while capital expenditure per mile has been steadily growing, brings out the distinguishing feature of the railway business, and one which will be referred to in subsequent chapters, namely, the wonderful elasticity of railway revenue. This is of the utmost importance, and emphasises what ought to be the cardinal principle of railway reform—the utilisation of capital resources to their full practical capacity.

It is difficult to conceive any reform of British railway administration under private ownership which would be calculated to bring about any approximation to this desirable economy. The movement for traffic reform described at length in the next chapter, and which aims at greater concentration of traffic, is a step in the right direction, but this is only part of the problem of securing better utilisation of the capital resources. So far as it concerns capital cost, this movement relates more particularly to rolling stock. The possibility of economising the fixed capital accommodation depends upon a closer co-operation between the different managements, and every step in this direction adds weight to the argument for nationalisation. If railway combination on a limited scale spells economy, it follows that the maximum economy is only possible under complete unification of the

railway system. What is wanted is a comprehensive and far-seeing railway policy, which shall have for its object, as a means of cheapening transit, the better employment of the fixed capital resources. Such a policy is not to be expected under private ownership. The crux of the problem lies in the conflict between the interests of the private investor, which must always partake of a temporary nature, and the permanent interests of the nation. The private investor cannot wait long, and because of this the permanent interests of society are continually sacrificed. Instead of a railway policy directed towards the all-round development of the country, which is the only policy capable of securing the best use of the fixed accommodation, we have under private ownership a policy which operates to aggravate town congestion and rural depopulation. Millions of money are from time to time expended in extensions and to develop business where it will be most immediately remunerative, that is, in and around the large centres of population, while throughout a great part of the country the limit of the original fixed accommodation has never been reached. From the point of view of the private investor this is the best paying policy—he cannot afford to look a generation ahead; but from the point of view of the permanent interests of the property as such, which are identical with the permanent interests of society, it is a policy of extravagance. Under public management railway policy could be so directed that the movement of population from the country to the towns could be checked, with the ultimate result that the fixed accommodation would be better utilised. Vast expenditures on extensions and improvements at large urban centres would become less and less frequent, and the accommodation in other parts of the country, which under present conditions is destined to be extinguished by natural causes, could be employed in public service.

CHAPTER IV

WORKING EXPENDITURE

THE attention of railway investors has for some time past been directed to working expenditure. The term "working expenditure" embraces the whole of a railway's expenses, apart from capital expenditure, and not merely the expenses of moving the traffic. If, it is argued, railways are not to be allowed to raise charges to meet growing expenses, financial relief must be sought in the direction of cutting down expenses as much as possible.

One portion of railway expenditure, although relatively unimportant, is that of local taxation. The Board of Trade Returns for 1907 show that the expense under this head increased by 42 per cent. between 1897 and 1907. The following are the figures :—

	£
1897	3,294,000
1898	3,425,000
1899	3,582,000
1900	3,757,000
1901	3,980,000
1902	4,228,000
1903	4,493,000
1904	4,736,000
1905	4,933,000
1906	4,965,000
1907	4,863,000[1]

Mr. A. E. Pratt has dealt fully with this part of the subject in his book "Railways and their Rates." Mr. Pratt gives a list of sixteen parishes in which the percentage of land owned by the railway companies varies from 1 to 5 per cent., whereas their assessments are

[1] The decrease of £102,000 in 1907 as compared with 1906 is probably due to successful appeals against assessments.

from 66 to 86 per cent. In one parish the London and North Western company are shown as holding 2 per cent. of the land and paying 86 per cent. of the rates.

The percentage of working expenditure to total receipts in 1897 was 57, and in 1907 it had risen to 63.

The chief items of working expenditure and their respective percentages to total receipts in 1897 and 1907 are given below :—

	1897.	1907.	
Maintenance of way	9·2	9·2	per cent.
Locomotive power	14·6	17·7	„
Traffic expenses	17·6	17·9	„

Comparing these items with total receipts and total working expenditure, the following result is obtained :—

	Per cent.
Increase in total receipts, 1897 to 1907	29
„ total working expenditure	44
Increase (included in working expenditure) in :—	
Maintenance of way	30
Locomotive power	57
Traffic expenses	32

These figures show that the expenses incidental to moving the traffic are progressing in an undue proportion to gross receipts, and this fact has given rise to a movement for traffic reform.

Certain means have been suggested by influential bodies outside the railway managements who control large holdings of railway stock. As already mentioned, these means include the adoption of American methods of handling freight by the use of more powerful locomotives, larger trucks, better loading of trucks, and longer trains. It has been pointed out by the management of the London and North Western company that these methods are not applicable in this country to the same extent as in America, and some friction has ensued. The whole matter seems to rest at present upon the possibility of approximating English conditions to American conditions, and this explains the movement towards railway combination.

Following this brief summary, a more particular account of the rise and progress of the movement for

traffic reform, its effects as partially adopted, with an attempt to discover the economic forces which have produced the present situation may be of interest.

The real starting-point of the movement for traffic reform appears to have been an article by Mr. George Paish in the *Statist* of April 1, 1899, calling attention to the remarkable success achieved by American railways through improved methods of handling traffic. A second article from the same pen, published by the *Statist* on September 8, 1900, appealing to British railway companies to adopt American methods of freight handling, appears to have had considerable effect, for the year 1901 showed, as compared with 1900, a saving of 7 millions of freight train miles. The serious fall in railway dividends and values in 1901 brought into existence an organised movement of railway investors calling for a more thorough application of the new methods. Attention was fixed upon the London and North Western railway, and it was found that from 1880 to 1900 there had been little or no increase in the average load of a goods train on that railway, and this was found to be typical of other railways. The conviction of the reformers was that if the railways could be persuaded to run fuller train and wagon loads, it would mean less proportion of deadweight hauled, fewer engines, fewer wagons and less coal, greater efficiency of staff, less spent on maintenance, renewals, and purchase of engines and wagons, less congestion of traffic, less delay, and less capital expenditure on new lines.

The London and North Western company, which at first had responded to the new ideas, afterwards came to the conclusion that "American methods of dealing with goods traffic are for the most part inapplicable to the goods traffic of this country," and on June 20, 1902, issued an official letter to that effect. This reaction was unsuccessful, and the London and North Western along with other companies introduced the new methods to a considerable extent.

The fact that the North Eastern company has achieved a better relative improvement through the adoption of American ideas than any other British rail-

way, coupled with the knowledge that the management of that company has been the most thorough in the application of those ideas, and alone amongst British railways have adopted the American system of statistics, has been used as an argument in favour of a wider application of American practice to other British railways. The directors of the London and North Western company were told at the half-yearly meeting held in February, 1906, that if they had made as much progress in efficiency as the North Eastern between 1899 and 1905, they would have saved the shareholders the sum of £386,000 in respect of the year 1905.

The general effect of the partial introduction of the traffic reforms referred to in the foregoing extracts is to some extent reflected in the Board of Trade Returns. In 1900 the number of freight train miles run was 180 millions, but in 1907 the number had been reduced to 164 millions. During the same period the total tonnage carried increased from 425 to 516 millions, so that one outcome of the change in traffic working has been a substantial saving in freight train miles, representing, on the basis of 1900, a reduction of 55 millions in respect of the year 1907 alone.

Notwithstanding this great saving in freight train miles as between 1900 and 1907, the quantity of fuel consumed increased by 21·3 per cent. for the same period. An increase in coal consumption, coinciding with a reduction in freight train miles, appears to imply that the traffic was not being dealt with as expeditiously as formerly, and, one would suppose, more claims for compensation on account of delay to and deterioration of goods. Turning to the Board of Trade figures, however, it appears that the claims for goods compensation declined in amount from £550,000 in 1900 to £431,970 in 1907. There are two possible explanations of this reduction. Compensation claims arise mainly out of the better class freight, and a large quantity of such freight is now being conveyed by road motors; further, a better understanding amongst the companies will have placed them in a position to resist claims which under active competition might have been paid.

Although the movement for traffic reform is undoubtedly on the right lines, the only benefit so far achieved as regards the railways as a whole appears to have been a slight saving in capital expenditure for rolling stock. The following table will convey an idea of the economy in this direction :—

	1900.	1907.
Tonnage	425,000,000	516,000,000
Locomotives	21,304	22,514
Goods vehicles	695,967	743,995

On the assumption that the added locomotives were of similar power and the added vehicles of similar capacity to those in use in 1900, this represents a capital saving of about 10 millions ; but, as more powerful locomotives and larger wagons are being built, some deduction must be made on that account. A further allowance should also be made on account of the abnormal increase of mineral traffic, the bulk of which is conveyed in privately owned wagons. The displacement of steam power by electricity on some lines is balanced by the inclusion of electric locomotives in the above figures.

Reference has been made to the progress made by the North Eastern company in comparison with other companies—particularly the London and North Western —by the adoption of American methods of freight handling, and as much depends upon the justice of this comparison it deserves careful examination.

It will be remembered that it was the London and North Western management which claimed a difference between British and American conditions as a reason for not adopting the methods of that country, and that they have since adopted those methods to some extent. Their reluctance to follow the North Eastern company further evidently laid them open to the indictment previously mentioned. The logic of the movement for traffic reform seems to be that, broadly speaking, what can be done by one railway can be done by another. The first step towards testing the soundness of this reasoning is to compare, as far as possible, the traffic conditions of the two railways. A considerable difference

in traffic conditions between the North Eastern and the London and North Western will affect the point at issue. By way of illustration two hypothetical examples may be given. If the freight traffic of a railway consisted entirely of minerals or other bulky freight carried in full train loads from point to point—the simplest of traffic conditions—the adoption of American methods would merely be a question of larger wagons and more powerful locomotives. On the other hand, if the freight traffic of a railway consisted entirely of miscellaneous goods in small parcels between thousands of different points, the adoption of American methods would be absurd. The remotest approach to American methods under the latter conditions would have to be preceded by elaborate organisation for combination of consignments, goods for some points would have to be held over to accumulate, and even then the average wagon and train load would be small. The possibility of economy in freight handling by the adoption of American methods on any British railway will depend upon the approach of its traffic conditions towards either of these extremes. The proportion of large or small freight units to total tonnage is the key to the whole situation. A large proportion of bulky and easily handled freight units to total tonnage implies the possibility of great economy with little trouble, whereas a large proportion of small freight units to total tonnage implies the necessity of much organisation to effect any economy at all. One consignment of minerals may amount to 500 tons and be conveyed in one train to one firm and one destination, and this to some extent applies to other bulky freight. A similar weight of miscellaneous merchandise may involve 5,000 separate consignments, an equivalent of at least five trains, innumerable trans-shipments, thousands of consignees, and hundreds of destinations.

What, then, are the comparative traffic conditions of the London and North Western and North Eastern companies so far as can be made out from the published returns?

The following figures, which relate to 1906, throw a little light on the matter[1] :—

[1] 1907 figures show a similar result.

	London and North Western.	North Eastern.
Tons of minerals carried ...	41,077,313	46,578,227
Tons of merchandise carried ...	10,504,994	14,411,998
Total tons	51,582,307	60,990,225
Receipts from total tonnage ...	£8,298,157	£6,362,525
Average rate per ton (pence)...	38·60	25·30

According to these figures the percentage of mineral freight to total freight is 79 for the London and North Western and 76 for the North Eastern, which fact, taken alone, and in view of the preceding arguments, appears to confirm the indictment of London and North Western methods. This needs explanation. It will be observed that the London and North Western conveyed 9½ millions less tons, but received 2 millions more money than the North Eastern, and that the average rate per ton on the London and North Western was 3s. 3d., and on the North Eastern 2s. 1d. Two factors determine the average rate : (1) Class of freight ; (2) length of average haul, although the latter is relatively not so important, and is only set down to satisfy the utmost claims of reason. The average haul is short even for the railway with the longest mileage, and the principal determinant of the average rate is class of freight. Articles are classified for carriage mainly according to value, cost of handling, and liability to damage. Given two railways then, a considerable difference in the average rate should indicate a difference in class of freight. To establish the substantial accuracy of this view the following figures are given before proceeding further with the argument :—

1906.

	Mileage.	Average	Proportion of Mineral Tonnage to Total Tonnage.
		d.	Per cent.
Midland	1,513	41	79
Great Central	627	23	80
Lancashire and Yorkshire	584	32	70
Barry	66	7	95
Taff Vale	124	8	95

The difference between the average rates of the Midland and Great Central, although roughly corresponding to the difference in mileage, is accounted for by a difference in the character of the balance of their respective freights after deducting mineral freight. The percentage of mineral tonnage to total tonnage is not an exact index of the amount of bulky freight units conveyed over a line of railway. The proportion of such freight to total freight is more clearly reflected by the average rate. A good deal of bulky freight is included in the description "general merchandise." A few examples are timber, hay, turnips, potatoes, and all kinds of grain. If distance were a reliable criterion, the average rate for the Midland should be twenty-three times greater than that of the Barry company, or 13s. per ton. Further confirmation of this point will appear later.

The comparison between the North Eastern and London and North Western may now be resumed.

Although the North Eastern company convey a less percentage of mineral tonnage to total tonnage than the London and North Western, the low average rate of the North Eastern company indicates that they convey a very large proportion of low-class freight, and consequently of large freight units. Part of the difference between the average rates of the two companies may be due to distance; but this is unlikely, as the average distance between stations will probably be greater on the North Eastern than on the London and North Western, and, as previously stated, the length of the average haul is short for the longest railway. An allowance proportionate to the difference in mileage may however be made. The length of the London and North Western line in 1906 was 1,947 miles, and of the North Eastern 1,694 miles. If the difference of 15 per cent. indicated by the mileage be taken off the London and North Western average rate, it is reduced to 32·76d. as compared with the North Eastern average rate of 25·30d. per ton. On this basis the class of freight dealt with by the North Eastern company contains proportionately 22 per cent. more bulky and

easily handled freight units than the London and North Western. If no allowance be made for distance, the North Eastern company would appear to handle proportionately 34 per cent. more of such traffic than the London and North Western. It is probable that the latter figure furnishes the best index to the difference in freight conditions between the two railways.

A study of the North Eastern company's territory tends to confirm the conclusion reached by a theoretical analysis of the traffic, and shows that its main freight sources are mineral and agricultural, and further, that its better class domestic freight, except in the district bounded by the Tees and the Tyne, is confined to the distribution of goods within a comparatively thinly populated area. This, in conjunction with its enormous "general merchandise" tonnage—four millions in excess of that of any other British railway, affords ample confirmation of the arguments based on the average rate. The North Eastern company's largest inland town is York, and its great commercial towns are either ports or on its borders. It cannot tap the traffic streams which flow between the large centres of population in the West Riding, Lancashire, the Midlands, Bristol and South Wales, and London, for which the London and North Western is so well placed, but which, from the point of view of economy in freight handling, are each split into competing channels. It cannot be doubted that throughout this region there is a larger proportion of small freight units to total tonnage (such as manufactured articles and miscellaneous goods for domestic consumption) than throughout the North Eastern company's area.

These facts alone show in regard to the inquiry as to the adaptability of American methods that the freight conditions of the North Eastern are more favourable than those of the London and North Western. The North Eastern has other advantages which tell in the same direction. It has a large area in which it reigns supreme, and is in a position to organise the bulk of its traffic without reference to rival concerns. It can hold back consignments until better loads have accumulated.

There is an obvious connection between the unnecessary services of competitive conditions and small train loads, and the practical immunity of the North Eastern from such conditions is all in its favour. The following extract from the Press (July 8, 1908) supports the foregoing remarks: "At a meeting of the Railway Committee of the Newcastle Chamber of Commerce yesterday, the Secretary placed correspondence before the Committee relative to transit delays on the North Eastern. He further reported that legal advice had been taken on the question of the delays and minimum truck loads, and probably a formal complaint would be made to the Board of Trade under the conciliation clause of the Railway and Canal Traffic Act, 1888."

It is also important to notice that the North Eastern company, so far as regards traffic which originates on its own line, has no private wagons to contend with. Other large companies (except the Midland) are compelled to carry the bulk of their mineral freight in privately owned wagons, whereas the North Eastern company is able to make much better use of its locomotive power and wagon capacity. The introduction of American methods upon an already crowded line, which, as compared with the North Eastern, must deal with extra trains through unavoidable empty wagon haulage, whose traffic is of a more retail character and also subject to competition, and whose depôt and siding accommodation has been designed for short trains, is bound to produce congestion and delay. Delays, quite apart from the serious question of the extra coal consumption and the extra wages they entail, especially delays to long trains, imply that whatever is saved in wagon capacity by better loading is lost by less frequent use; and further, that the charges to pay to foreign companies for demurrage on extra detention of wagons will be increased. In the case of delays to long coal trains of privately owned wagons the loss in wagon capacity falls upon the owners, but the railways concerned are liable for demurrage charges in this case for unusual detention. Frequent use of wagon capacity is quite as important a factor in reducing the number

of wagons required as the heavy loading of wagons. The ideal economy would be heavy loading and frequent use, which cannot be thoroughly brought about until unnecessary services have been abolished, and this involves extensive co-operation.

Turning from the particular comparison of the London and North Western and North Eastern, a general comparison of British and American conditions may now be made.

The United States of America, from which the movement for improved freight handling emanates, is a country of vast distances, and with charges based on distance this implies a large unit of purchase, *i.e.*, traders will buy in large quantities to save carriage. Great Britain is a country of short distances, and this implies a small unit of purchase, *i.e.*, traders will buy in small quantities to keep goods fresh and to avoid locking up capital in stocks. These points are of fundamental importance, as there must be a correspondence between the unit of purchase and the unit of load. Further, a similar difference of freight conditions as exists between the North Eastern and London and North Western exists between American and British conditions. American freight will contain a large proportion of bulky and easily handled freight units, such as grain and timber, whereas there is comparatively little of such traffic in Great Britain. The long distances and the wholesale and bulky traffic of America both make for large train loads, whereas the short distances and retail conditions of Great Britain make in the opposite direction. The application of American methods to Great Britain, therefore, implies elaborate organisation of freight units to obtain good loads. This has been recognised in practice within the limits of the diversified character of British railway administration for many years.

At Crewe the London and North Western have a special depôt for the interception of small consignment traffic and its re-arrangement by unloading and reloading to better advantage. From 500 to 700 wagons are trans-shipped daily at this point, and, illustrating what has been said in regard to small traffic, it may be men-

tioned that the number of consignments dealt with every 24 hours ranges from 20,000 to 30,000, and the weight from 800 to 1,200 tons. By this process a good deal of light loading is saved, but it entails the employment of about 500 men, and the depôt itself represents a heavy capital outlay.

The important point to grasp in relation to the combination of small consignments is that it could be carried out still more effectively if the number of separate railway systems was reduced. The complete unification of the British railway system, and the establishment of depôts similar to that at Crewe at convenient points throughout the country to intercept, unload, and rearrange North, South, East and West-bound traffic, would effect an enormous economy in rolling stock requirements and locomotive expenditure, facilitate the movement of goods, and reduce compensation claims to a minimum. Expressed in simple form, it would mean the extension of the postal principle of organisation to heavy parcels.

The Advance in the Percentage of Working Expenditure in Recent Years

An interesting point in regard to the percentage of working expenditure remains to be considered. A knowledge or even inkling of the economic forces which have operated to produce the present position of British railways is essential as some sort of guide to the application of remedies. In the absence of complete statistics, and in the presence of cross-currents, such a process must necessarily be speculative, but there is sufficient material to justify an inquiry. It was pointed out in the second chapter that between 1897 and 1907 goods revenue progress had not kept pace with tonnage progress, the percentages of increase being 28 and 38 respectively. For reasons which follow, and in order to simplify the inquiry, attention will be concentrated on this one point. This line of investigation, it will be observed, leaves out of account (1) the probable effect of increased expenses in recent years; (2) the passenger

branch of the service. It will first of all be necessary to explain why these important factors are omitted.

As regards expenditure, it will be remembered that the best energies of the companies have been devoted towards economy throughout the past seven or eight years. Reforms which are claimed to be great economies in traffic working have been introduced by the use of more powerful locomotives, larger wagons, and better methods of loading, without having produced any marked effect. It would be paying these efforts a poor compliment to suggest that they had not gone a long way to counteract the enhanced prices of fuel, materials, and labour, and the increase in local taxation. Moreover, the latter item was less by £102,000 in 1907 than in the previous year; further, the price of fuel, which is an important item of expense, fell from 10s. 9d. per ton in 1900 to 6s. 11d. in 1905, and although it had risen to 9s. per ton in 1907, it was still below the high figure of 1900, whereas the percentage of working expenditure to total receipts was 63 in 1907 as compared with 62 in 1900—before the traffic economies had been introduced. These appear to be sufficiently strong reasons for turning from the expenses to the receipts side of the account for an explanation of the present situation.

Coming now to the reasons for omitting the passenger branch of the service from the inquiry, it may be pointed out as regards increased expenses that the passenger and freight departments are likely to have suffered in practically equal ratios. The increased expenditure is of such a nature that it applies to the railways as a whole and not to any particular department. When we come to look at passenger receipts, we are again unable to find any good reason for suspecting that this branch of the service has contributed in any large measure to the difficulties of the railways. Passenger receipts have shown a remarkable tendency to increase, in spite of the extraordinary competition which has been encountered in the shape of electric tram services and motor developments during the past ten years. Notwithstanding this opposition, there has been no decrease in passenger

receipts, comparing one year with another, since 1885. Probably the increases might have been greater apart from the competition of new methods of transit, but the significant fact remains that there has been no decrease in passenger receipts for over twenty years.

Considering the great economies which have been effected in working the goods traffic, the steady increase in passenger revenue, and the unparalleled boom in trade which ended with 1907, and left the railways practically as it found them, there is good warrant for the assumption that the forces which are now, and have been for some time past, operating against the prosperity of the railway business, are of an unusual character. A full consideration of all these various points throws into strong relief the discrepancy of 10 per cent. between the percentages of tonnage increase and revenue increase in the freight department, and justifies a searching inquiry in that direction as a likely field for discovering some clue to the diminishing margin of profit.

Between 1874 and 1891 the percentage of working expenditure to total receipts fluctuated between 51 and 55, and in 1892 for the first time reached 56, with a further advance to 57 the following year. The increase from 55 to 57 is clearly traceable to a falling off in revenue. The total revenue for 1892 was only £130,000 above that for 1891, while the total revenue for 1893 was less than that for 1892 by no less than £1,460,000. Taking goods revenue alone, 1892 showed a decrease of £360,000 as compared with 1891, and 1893 a decrease of £1,800,000 as compared with 1892.

On January 1, 1893, a revised and practically uniform scale of charges for all railway companies came into operation, and a preliminary question to be considered is how far this change permanently affected the percentage of working expenditure to total receipts. It was claimed by the railway companies at the time that the revision amounted to an all-round reduction, and if this view be correct, part of the rise in the percentage of working expenditure to total receipts is due to the revision. The serious decline of revenue in 1893 as compared with 1892 gives colour to the railway opinion,

but an examination of the details reveals the fact that the decrease in receipts coincided with a substantial decrease in total tonnage. The average rate per ton for 1892 was 32·19d., and for 1893, 32·42d. At first sight this appears to contradict the railway view of the rates revision. Reference to history, however, shows that on the introduction of the revised scale of charges the companies endeavoured to recoup themselves for the loss on new scale rates by an increase of special rates from the old figures to the new scale, and the advance in the average rate from 32·19d. in 1892 to 32·42d. in 1893 probably marks the measure of their success. This is more fully dealt with in Chapter VIII. Throughout the years 1893 to 1900, although an Act passed in 1894 gave the Railway Commissioners jurisdiction to prevent any increase of rate unless satisfied that it was reasonable, there was constant friction between the railways and the traders, owing to the companies' efforts to neutralise the effect of the rates revision. The matter was finally settled in 1900. During the years immediately following the revision, the traders, acting in concert, deducted month by month from their credit accounts certain amounts for alleged unreasonable increase of rates. If the companies carried these accumulated outstanding items (the bulk of which were eventually written off) in their revenue accounts until the question was finally settled, the full effect of the rates revision would not develop until after the settlement. As the percentage of working expenditure fell from 57 in 1893 to 56 for the three following years, it is not unreasonable to suggest that the presence of fictitious revenue in the shape of uncollectable accounts during those three years assisted to hold the percentage of working expenditure in check. Appearances certainly point to the conclusion that the full effect of the rates revision of 1893 was to permanently increase the percentage of working expenditure to total receipts.

The high price of coal and a sympathetic advance in the price of materials at the time of the South African war, which, in respect of fuel alone account for an increase in cost of 63 per cent. between the years 1898

and 1901, the increase in local taxation, the effect of the railway rates revision of 1893, and a gradual fall in the average receipts per ton—to be discussed presently—are sufficient to explain the advance in the percentage of working expenditure from 58 in 1898 to 63 in 1901. The difficult part of the problem is to account for the maintenance of the percentage of working expenditure during the years 1902 to 1906 at 62, and its rise to 63 again in 1907, for during these years the price of fuel was lower than in 1900 and 1901 by about 2s. 6d. per ton on the average, and the traffic economies, to which reference has been made, were in operation. The tendency of the percentage of working expenditure to rise, in face of these more favourable factors, forces us to examine the receipts side of the account for an explanation of the phenomenon.

The fall in the average goods rate per ton may now be considered. The following table will illustrate what is meant :—

Year.	Average Rate per Ton	Proportion of Mineral Tonnage to Total Tonnage.	Percentage of Working Expenditure to Total Receipts.
	d.	Per cent.	Per cent.
1892	32·19	71·00	56
1893	32·42	70·00	57
1897	29·79	71·29	57
1898	30·32	70·73	58
1899	29·41	71·71	59
1900	29·39	72·10	62
1901	29·78	71·65	63
1902	29·23	73·30	62
1903	29·00	77·46	62
1904	28·80	77·70	62
1905	28·63	77·65	62
1906	27·98	78·34	62
1907	27·76	79·00	63

The figures are arranged in three groups, because as regards precentage of mineral tonnage to total tonnage the years are only comparable within each group. There was, as already stated, a revision of rates in 1893, which carried with it a revised classification and, according to the Board of Trade Returns, a revision of the list of articles included under the head of "minerals" in 1903 which destroys comparison as to quantity of minerals conveyed in that and the following years with previous years.

It will be noticed that the decline in the average receipts per ton has coincided with an increase in the proportion of mineral tonnage to total tonnage within each group, and that while the average rate per ton has been falling the percentage of working expenditure to total receipts has been rising. Whether these two divergent tendencies are to any extent complementary depends upon the rate of tonnage increase. If the number of tons carried is increasing fast enough to counteract the loss due to the fall in the average rate, the latter phenomenon need excite no alarm. This will be developed at length presently; in the meantime the hypothesis may be advanced that the increase in the number of tons is inadequate to balance the loss of revenue due to the falling average rate, and further, that a leakage of valuable freight is taking place which, altogether apart from any increase of expense, is adversely affecting the percentage of working expenditure to total receipts. The following is the position :—

	Per cent.
Increase in tonnage, 1897 to 1907	38
Increase in goods revenue, 1897 to 1907 ...	28
Increase in working expenditure, 1897 to 1907	44

It this process continues it is evident that the difficulty of maintaining a margin of profit will intensify as time goes on. It would also appear that reform is needed in two directions. Traffic reform and co-operation amongst the different managements may be expected to accomplish much in the direction of reducing expenditure; but if the average receipts per ton continue

to fall, there will have to be some means of stimulating revenue, either by increased charges or an acceleration of the rate of tonnage progress by the offer of lower charges. Which of these two alternatives is likely to be the more successful will be indicated before the close of the chapter.

With a decline in the freight value of the tons carried, the number of tons should necessarily be greatly increased to maintain profit. A loss of 1,000 tons at 10s. per ton cannot be made good by the accession of 4,000 tons at 2s. per ton ; further, if the tons at 2s. are carried at a fractional margin above working expenses, and the tons at 10s. when carried provided a substantial margin over working expenditure and a generous contribution to interest on capital, the accession of tons at 2s. will have to be very great indeed to balance the loss of the better class traffic. This part of the inquiry may now be suspended until the way has been prepared for its resumption.

Rates for the carriage of coal are exceedingly low, and, although the circumstances of individual railway systems vary considerably, it is accepted as being generally true that such traffic pays little, if anything, towards interest on cost of construction. No means of proving this assertion are available, but the opinions of Mr. W. M. Acworth and Professor Hadley, eminent British and American authorities respectively, may be cited. Mr. Acworth ("The Railways and the Traders") says: "The fourth and last of the items which go to make up the cost of carriage is interest on capital. If it was difficult under the three previous heads to settle what share of the total cost was to be borne by each particular kind of traffic, the difficulty here is enhanced tenfold. In the other cases it was possible to ignore, or at least keep in the background, the question of the value of the article transported. But it is impossible to do so any longer, for the practice of the civilised world is agreed in this, that, though possibly all classes or traffic ought to be called on to pay their share of the working expenses, the cheaper kinds ought to be largely relieved of the obligation to pay interest on

construction capital. Even in Germany, where more than anywhere else the so-called "natural" system of basing the tariff on cost of service has been adopted—a system, in fact, about as natural as the old English legal system of paying a solicitor in accordance with the length of the deed he drew—even in Germany the attempt to make coal pay as large a share towards interest on capital as drapery goods would be a revolution." Professor Hadley ("Railroad Transportation") says: "If our railroads made it a rule to carry nothing at less than the average cost of doing the whole business, they would give up nearly all the coal trade and a great deal of the grain trade. It would give us dear food and dear fuel, and would injure both the railroads and the districts which they serve."

The low rates for the carriage of coal are justifiable on three main grounds:—

(1) The first of these grounds is that the number of tons carried is so large that even with low rates per ton there is an aggregate profit. Two railways which make their profits under these conditions are the Taff Vale and Barry companies, which convey coal for export. The following table shows the density of their mineral traffic as compared with two other busy railways:—

	Mileage.	Tons of Minerals carried in 1907.	Tons of Minerals per Mile of Line in 1907.
Barry	66	10,340,418	157,000
Taff Vale	124	18,962,926	154,000
London and North Western ...	1,947	44,322,200	23,000
Lancashire and Yorkshire ...	585	18,777,318	32,000

(2) The second of the grounds which justify the carriage of coal at low rates is that, although the number of tons carried may not be sufficient to make a profit alone, cheap fuel within the territory of the railway which conveys it stimulates manufactures and gives the

line other and more profitable goods to carry. In the case of manufactured goods the railways get two or more, and sometimes as many as four or five freights out of the same materials. In the case of cotton, for instance, there is freight in the form of (*a*) raw cotton to the spinner; (*b*) yarn to the manufacturer; (*c*) cloth to the dyer or bleacher; (*d*) cloth to the wholesale warehouse; (*e*) cloth to the retailer. The London and North Western and Lancashire and Yorkshire companies, which do not carry proportionately the same quantities of coal as the Barry and Taff Vale companies, are able to recoup themselves for any deficiency caused by the carriage of coal at low rates out of the carriage of products which furnish several freights in the processes of manufacture and distribution. It should be stated that the Lancashire and Yorkshire company is severely handicapped financially owing to a very heavy capital charge, consequent upon its line having been laid through a physically difficult country and by its short mileage, which compels it after short hauls to hand over splendid freights to its long-distance neighbours.

(3) The third of the grounds which justify the carriage of coal at low rates is that the line has resources which would not otherwise be employed. In regard to this point it should be observed that the encouragement of traffic which does not contribute a fair share towards interest on construction capital, and which does not develop other business—export coal for example—although temporarily justifiable, may lead to the provision of new accommodation sooner than would otherwise have been the case. If this happens, it means in effect that accommodation has been provided specially for traffic which will not pay interest on the capital expended for the purpose.

Railways whose tonnage consists largely of coal for export or for home consumption beyond their own line, and who derive a considerable portion of the balance of their freight from agricultural sources, cannot make as much profit (unless of cheaper construction) as railways placed like the Taff Vale and Barry on the one hand, or like the London and North Western on the

other. Witness the lines which serve the Eastern counties. The success of the North Eastern as compared with the Great Eastern is explained by greater density of traffic; as compared with the Great Central by its low capital charge per mile; and as compared with the Great Northern by advantages in both these respects. This is brought out in the following table, which relates to 1906:—

	Density of Traffic per Mile in Tons.	Capital per Mile (less Nominal Additions).	Proportion of Mineral Tonnage to Total Tonnage.	Average Dividend on Ordinary Stock, 1898 to 1907.
		£	Per cent.	Per cent.
North Eastern	36,000	42,000	76	5·9
Great Eastern	10,000	49,000	56	3·2
Great Central	45,000	76,000	80	Nil
Great Northern	23,000	62,000	75	3·6

The difference between the capital charge per mile of the North Eastern and Great Central companies is mainly explained by the difference in the physical conditions of their respective areas. The North Eastern line for the most part traverses a level plain, which has presented few engineering difficulties, while the Great Central line has been driven through the Pennine Range and amongst the Derbyshire hills. The facts concerning the distinguishing characteristics of individual railway systems show the absurdity of applying what is practically a general scale of charges to particular conditions, and emphasise the necessity for a unification of the railways of the kingdom, so that the physical and economic advantages of some parts may offset the corresponding disadvantages of other parts of the kingdom.

A full consideration of the available data in regard to the conveyance of coal points to the conclusion that many British railways are carrying coal at less than cost. By less than cost is meant that the receipts from such traffic, after contributing to working expenses, do not provide a fair share towards interest on capital. The

deficiency of contribution to interest charges by coal traffic is made good by the extra taxation of better-class freight under the system of charging what the traffic will bear. This principle may be defended from a domestic point of view, as it assists the development of the country's resources (although individual systems may suffer), but when British manufactures are taxed to assist the conveyance of coal for other than home consumption the matter assumes a totally different aspect. It may mean that British traders are subsidising their foreign competitors. It has been contended that foreign competition cannot be maintained on exported coal, but this is based on the assumption that coal freights are high. Even assuming this contention to be true, and that the greater part of the coal exported from this country is for navigation purposes, if such coal is carried at a loss by British railways and afterwards used to furnish cheap sea freight for foreign goods (although carried in British ships), to some extent, at any rate, such loss represents a subsidy paid by British manufacturers to their foreign competitors.

Leaving this wider aspect of the question aside, it will be understood that when a large proportion of a railway's traffic consists of coal for export or for home consumption beyond its own line, and the number of tons carried, though great, is not sufficient to provide a fair aggregate contribution to interest charges, that the question of dividend depends upon (1) the quantity and quality of the balance of traffic, and (2) the amount of capital invested in the line. If the line is of costly construction and the balance of traffic over and above mineral traffic contains a large proportion of low-class freight, such as agricultural produce, &c., we have a set of conditions which, for the sake of clearness, may be brought together thus :—

(1) A line of costly construction.
(2) A line with a large proportion of mineral to total tonnage.
(3) A line which has not sufficient mineral units to furnish a fair contribution to interest charges.
(4) A line with a small proportion of valuable freights.

Such a line cannot pay a good return on capital investment, because the general scale of charges fixed by law assumes a better average set of conditions. When such a line is subject to competition in regard to its valuable freights its difficulties are intensified, and its only hope lies in the extension of its system to some important point from and to which valuable through business is available. This apparently has been realised by the Great Central company in the extension of the system to London. By this step the Great Central company may not have created much new business, but it has made sure of getting a better share of what already exists and a better chance for the future. It is perhaps not saying too much to attribute the present amalgamation proposals between the Great Northern, Great Eastern, and Great Central companies to the spirited efforts of the latter to escape from hopeless traffic conditions.

The discussion in the fall in the average rate may now be resumed.

Applying to British railways as a whole the arguments already advanced, it will be seen that coal carried for export must be an important factor in reducing the average receipts per ton, and what is more serious, in diminishing the margin of profit, because (1) the traffic is carried at rates which do not as a rule contribute to interest on construction capital; (2) exported coal does not develop British manufactures. Coal consumed by the British Royal Navy and by steamers engaged in the foreign trade is practically in the same category. A great increase in the proportion of exported coal to total output may consequently represent a loss to British railways as a whole, although particular lines like the Barry and Taff Vale, owing to the enormous quantities they convey, and like the North Eastern, which has a low capital charge per mile, may make a profit. Losses incurred by the carriage of coal at low rates, let it be repeated, are made good to the railways, as far as possible, by extra taxation of other freights. The same argument has of course been applied to the carriage of foreign produce. It should be pointed out, however, that as

regards the bulk of foreign produce, direct water routes are available, and the imposition of higher rates would drive such traffic off the railways, leaving a greater burden than ever to be borne by the home goods (see Chapter X). It is also conceivable that an increase of the charges on coal for shipment might bring continental coalfields into competition with British coalfields as regards much of the coal now exported from this country, in which event the effect would be similar to that which would follow any attempt to get higher rates for the foreign produce. The question whether British railways should insist upon higher rates for the carriage of coal for export is one for investigation along with the larger question of the depletion of the country's coal supply. The object of this inquiry is merely to offer one explanation of the narrowing margin between expenses and receipts on British railways.

After what has been said the following figures will be of interest :—

Year.	Coal output.	Coal exported.
	Tons.	Tons.
1880	146,969,409	17,891,181
1890	181,614,288	28,738,241
1895	189,661,362	31,714,906
1900	225,181,300	44,089,197
1901	219,046,945	41,877,081
1902	227,095,042	43,159,046
1903	230,334,469	44,950,057
1904	232,428,272	46,255,547
1905	236,128,936	47,476,707
1906	251,067,628	55,599,771
1907	267,830,962	63,600,947

The quantity of coal shipped for use of British and foreign steamers engaged in the foreign trade in 1907, and which is not included in the above figures, was 18,618,828 tons. Allowing for the quantity of coal exported in the form of coke and patent fuel, the total quantity which left the country in 1907 was over 85,000,000 tons. From these figures it will be observed that the proportion of coal exported to total output is

steadily increasing. In 1880 it was about one-eighth, and now approaches one-third.

The position, as above disclosed, has to some extent been appreciated by the railway companies of Great Britain, who, in June, 1907, issued a notice to the public intimating an increase of rates as from July 1, 1907, from which the following extract is taken :—

ALTERATION IN RATES FOR COAL, COKE, BREEZE, AND PATENT FUEL

"Rates for Coal, Coke, Breeze, and Patent Fuel, which are now charged at 21 cwts. to the ton, or at 20½ cwts. to the ton, or at 20 cwts. per ton with an allowance of 2 cwts. per truck, will be charged on the standard imperial avoirdupois weight of 20 cwts. to the ton."

The traders are resisting this increase. Their success, if achieved, will only be partly at the expense of the railways. The continued carriage of coal at less than cost, and the continued application of the principle of charging what the traffic will bear, will continue to transfer part of this loss to other traders.

The fall in the average rate due to the abnormal increase of the coal traffic has been aggravated by a leakage of better paying tonnage to the roads through the introduction of road motor vehicles, which, with the increased use of motor conveyances for passengers and the spread of electric tram services, has retarded traffic increase and contributed to the advance in the percentage of working expenditure. Probably the most serious of these items as regards the past few years has been the leakage of goods traffic to the roads. This affects the railways in two directions. It takes from receipts and adds to expenses by increasing the cost of maintaining roads to which the railways contribute in the shape of local taxation, and for which purpose they are in many cases over-assessed.

At a meeting of the Fylde Rural Council held on June 3, 1908, the immense amount of damage done

by motor cars and motor wagons on the roads was discussed, and it was stated that it would take the whole of the highway rate for the township to keep one road in repair. The railway company, it was pointed out, paid the Rural Council something like £1,000 in rates, whereas the heavy motor wagons, many of which came from the county boroughs, used the roads extensively, and did not contribute one penny towards their upkeep.

It has been stated that the number of motor vehicles in use in the United Kingdom at the present time (December, 1908) exceeds 150,000, of which 12,000 are used for trade purposes. If it be assumed, for the sake of argument, that only half the number of vehicles used for trade purposes are employed in the conveyance of goods which formerly went by rail, and that on the average each vehicle moves 50 tons per week, we get the enormous figure of 15 millions of tons of valuable freight per annum as being conveyed by road instead of by rail. The average rate for merchandise in the United Kingdom is 5s. 6d. per ton; but the "merchandise" classification includes much bulky freight, such as timber, which, it may be presumed, will still on the whole go by rail, so that the average rate of the traffic conveyed in road motors will be higher than 5s. 6d. per ton. If we put the figure at 6s. 8d. per ton we arrive at the rough-and-ready conclusion that the railways are losing £5,000,000 worth of revenue per annum, through the competition of road motors, in respect of freight alone. It needs to be strongly emphasised that the tendency of the motors will be to select for conveyance the traffic upon which the railways have the most profit. The principle of charging what the traffic will bear, under which the railways make more profit on some than on other business, and without which an aggregate profit is not possible, demands a virtual monopoly of land transit as an indispensable condition of success. Under these circumstances the introduction of road motors for the conveyance of merchandise threatens the foundations of the system upon which the financial prosperity of the railway business depends.

In the absence of any attempt to co-ordinate the

transit system of the country on comprehensive national lines, it would appear that the financial salvation of the railways lies in the direction of increasing the number of valuable traffic units by the offer of reduced charges. An increase of charges, or even maintenance of present charges, must aggravate the present situation. With a growing proportion of mineral tonnage to total tonnage, accelerated by increased quantities of coal for export on the one hand and an escape of valuable freight to the roads on the other, continued pressure on the narrowing margin of valuable freight by charging what the traffic will bear cannot fail to intensify the difficulties of the railways.

From the public point of view the increase of heavy road traffic is an undesirable development. Moreover, apart from considerations of public health and public safety, the present trend of events is causing the upkeep of an extra heavy traffic medium, and is therefore responsible for an enormous waste of national resources. The large increase in the amount of local taxation paid by the railway companies during the past ten years may be taken to indicate a similar increase for the whole community. A considerable proportion of this increase may safely be attributed to the extra cost of maintaining highways, and it is therefore probable that several millions per annum are being spent by the community which might be saved if the railways were employed in carrying the bulk of this heavy traffic.

CHAPTER V

MODERN TENDENCIES TOWARDS MONOPOLY

ALTHOUGH designed to protect the public from the dangers usually associated with private monopoly, and at the same time to secure the advantages of private enterprise under the stimulus of competition, in practice British railway regulation has done neither. The evils of unregulated monopoly have been perpetrated, not in defiance of, but with the aid of the law, while the economic consequences which are supposed to ensue from the free play of competition have been frustrated by the special character of the business. Competition, however suitable as an automatic regulator of other types of business, has been most unsuitable to railways, and the fact would probably have gone unappreciated longer, had not the evolution of industry brought about other forms of investment which also demanded some modification of economic ideas.

The theory of competition which prevailed in the early days of railway enterprise, was that it protected the consumer from high prices on the one hand, by attracting fresh capital into the business where they could be obtained, and on the other hand did no harm to the producer, because as soon as the prices fell to the level of cost of production capital could be withdrawn and seek more profitable investment. This theory assumed the mobility of capital, whereas in present-day forms of industrial investment, which railways have been largely responsible for bringing into existence, and of which railways themselves are an extreme type, the greater part of the capital is fixed. This fact accounts for the movement towards trusts and combinations.

Indiscriminate investment in fixed capital is one of the causes of industrial depression, and if the capital resources of the community, upon which employment and the means of life depend, are to be economised, there will have to be less competition and more combination.

Another idea of competition is that which regards it as the commercial analogy of the law of the survival of the fittest. In an earlier stage of economic development competition may have acted in such a manner, and it is conceivable that the losses which drove competitors out of business were in most cases the penalties of unfitness. As these losses were spread over numerous small capital units, there probably resulted the maximum of good and the minimum of evil to society. With great improvements in, and specialisation of, machinery, brought about to some extent by the selective operation of past competition, and the increased size and more skilful organisation of the capital units which became necessary in order to take full advantage of these changes, competition began to assume an aspect of social danger. It began to be more intense as the stakes increased and unsupportable to the means of the individual capitalist, with the result that modern joint-stock enterprise appeared.

The increased size of the capital units and the introduction of the joint-stock principle of investment, which made a portion of the outside public partakers in business, gave to its conduct an entirely new meaning. The success or failure of an industrial concern acquired an obvious social importance. Under simpler economic conditions it was impossible for business to be carried on for long at a loss. When a trader ceased to make money he was forced out of business and there was no appreciable effect on society; but the failure of a modern joint-stock undertaking, in which a million of money may be sunk—belonging to hundreds of proprietors—in plant which cannot be used for any but a specific purpose, and which employs a thousand workpeople, is a very different matter. Such a concern, under financial circumstances which formerly would have dictated withdrawal from business, makes a desperate effort to continue

working in the hope that times will mend. It may mean a serious present loss to go on. Prices may not permit the payment of interest on capital or, it may be, are so low as to provide very little for repairs; but absolute stoppage might involve the total destruction of a large investment, with widespread financial and social disaster.

A joint-stock concern in the North of England with a large share capital, and which employed some hundreds of workpeople, went into voluntary liquidation some years ago, owing, over and above the share liability, a large amount to unsecured creditors. Such were the mutual interests of all the parties concerned, creditors and workpeople being shareholders and loanholders, and other shareholders being indirectly interested as small shopkeepers in the same town, and so disastrous would have been the consequences of stoppage, that the concern continued working for several years under the direction of the liquidator, until an improvement in trade made reconstruction possible. In the reconstruction the creditors willingly took up debenture stock in satisfaction of their debts. A few years afterwards the recurrence of bad trade made it impossible to discharge the interest on the debenture stock, and a receiver took possession of the assets for the debenture holders. There was no stoppage of the works. Business went on as usual, and repeated attempts were made to dispose of the assets as a going concern, but without success. A break-up of the property, which was occasionally suggested by impatient individuals, was always dismissed by the majority as out of the question. The receiver has continued the business for several years, and as a result of another period of good trade the concern is now on the eve of another reconstruction. During this prolonged struggle with fortune about £100,000 of capital has disappeared. The point to observe for the purpose of this argument is that the concern not only survives as an active producer, but, by reason of being relieved to pay dividend on its original capital, has become a more irresponsible competitor. Notwithstanding the severity of competition and recurring periods of bad trade, it has not been eliminated from the ranks of production. This is a typical instance of

modern capitalism, and could be supplemented by scores of similar ones, as any chartered accountant of experience could testify. The object of this illustration is to show the sustained intensity of competition under modern conditions, the losses which it imposes upon the community in the cases of those businesses which survive, and the extent of the disasters which must attend complete failure.

With such a state of things it is inevitable there should be some attempt to regulate investments of fixed capital, and although combinations formed with this object may in their efforts to overcome the dangers of competition also take away the protection which it previously afforded to consumers, the new economic conditions have brought with them a compensating element. Before a large concern or trust can reap the full benefit of their large investment they must be able to sell the large quantities which they are able to produce, and this cannot be achieved except by reasonable prices; in fact, the quantity sold is the principal determining factor in the cost per unit of product. A large proportion of the expenses of such a concern consists of interest and maintenance charges, which are unaffected by the volume of business. If few things are produced the cost per unit is such that they cannot be sold at a profit. If many things are produced the cost per unit is such that with a moderate price, giving a merely fractional profit per unit, the aggregate profit is satisfactory. The prosperity of such combinations depends upon increased consumption, and is therefore bound up with the prosperity of society.

What is true of all large investments of fixed capital to-day has always been true in every respect and in a much greater degree of railways.

In the case of an ordinary industrial monopoly the cost per additional unit of product diminishes up to the full capacity of the plant, but there is additional aggregate cost for raw material as the volume of business increases. With railways, things not being produced in the same sense, but simply transported, there is nothing corresponding to the expenditure for raw material, and it often happens that additional traffic units may be carried with-

out any increased cost whatever. The staff, appliances, motive power, organisation, and permanent way for dealing with a small number of units will deal almost as cheaply with a considerably larger number of units. A truck is necessary to carry one consignment of 1 cwt., and the same truck can just as cheaply carry thirty times that quantity. An engine with driver and fireman is necessary to haul one truck, and very little extra fuel is necessary to haul fifty trucks. A railway is necessary before a single train can run, even if it runs but once a day, and the same railway can almost as cheaply accommodate forty trains per day. Cost remains practically stationary between the first unit received and the full capacity of each branch of the machine. The number of hands, the number of vehicles, motive power, and the permanent establishment are portions of the organisation of a railway which furnish expanding degrees of elasticity in regard to carrying and therefore earning capacity. Business may increase sufficiently to necessitate the employment of more operating staff and the other expenses remain practically the same. A further increase may involve additional vehicles but no extra motive power, while the permanent expenses, except for items such as local rates and fluctuations in the prices of labour and materials, do not vary until the full carrying capacity of the line has been reached.

The permanent expenses which are not affected by the volume of business have been estimated by Sir George Gibb at 41 per cent. of the total expenses of a railway. In his evidence before a recent Board of Trade Departmental Committee he stated: "I calculate roughly that about 41 per cent. of our working expenses are not substantially affected by the quantity of traffic. Supposing our traffic were to fall off 10 per cent., about 41 per cent. of our working expenses would be quite unaffected; therefore, they would have to be spread over the remainder of the tons carried, and consequently each ton carried would have to bear a larger figure to contribute to those fixed charges and interest on capital." The substance of Sir George Gibb's evidence is that a reduction in the number of units carried increases the cost per unit,

because there are certain charges, amounting to no less than 41 per cent. of the total expenses of a railway as well as interest charges, which do not vary with the quantity carried. If this be true in one direction it must be true in the other. An increase in the number of units carried must reduce the cost per unit. Under these circumstances railway management would be exceedingly short-sighted to make charges that would drive away business. All the economic conditions which compel the owners of an ordinary industrial monopoly to adopt reasonable prices are present in greater force in the railway business. To quote again from Sir George Gibb: "Probably there is no industry in existence where the capital expenditure is necessarily so great as in the case of railways."

Although the permanent interests of the owners of a monopoly may coincide with the permanent interests of the community, their temporary interests may conflict, and the management may not be sufficiently far-sighted to see that a temporary gain at the expense of the community must injure business. Even if the owners of a monopoly do realise the identification of their interests with those of the public, there may be circumstances, over which they have no control, which drive them to secure the temporary profit and risk the permanent interests of their business as well as those of the public. It is round these points that the question of State ownership and management of monoplies must ultimately revolve.

In the case of railways there has been a movement in the direction of securing the mutual benefit of the proprietors and the public which has been considerably hampered by law. The State, by onerous regulations which have indicated no finality, and local bodies, by costly requirements and unreasonable assessment of railway property which have shown the same tendency to indefinite expansion, have tempted the railways to exact as much revenue as possible where they have had absolute monopoly, before any further burdens could be imposed upon them. "Make hay while the sun shines" has under these circumstances been forced upon their atten-

tion. Parliament has not only tempted the railways to act in this manner, but has provided the authority to charge the high rates necessary for the purpose, and by insisting upon an awkward and costly formality before they can bring back to its original figure a rate which has been voluntarily reduced in order to encourage business,[1] has given them an excuse for keeping rates up as long as possible. Moreover, the railways have been strictly forbidden by Act of Parliament to create anything in the nature of a monopoly, and have had competition thrust upon them by the granting of charters to rival concerns—a competition altogether impotent to confer the benefits usually associated with commercial competition, for the simple reason that the natural limit which divides the fit from the unfit and excludes the latter from the struggle could never be reached.

Had there been no State interference with the commercial aspect of the business, and had their monopoly privileges been properly secured to them, it seems reasonable to suppose, from a full consideration of the business and the conditions necessary for its success, that the railway companies, in pursuit of their own gains, would have reduced charges—and experience shows this tendency, in face of the obstacles and expenses imposed by law—until the traffic units had so far increased as to produce the maximum profit. Beyond this under private management there would not have been any further inducement to encourage the use of the railway.

[1] See page 102.

CHAPTER VI

COMPETITION

RAILWAY competition, although it could find no natural limit, has not been entirely devoid of good results. The splendid passenger services which the British public are able to command on the through routes between England and Scotland, between the great towns of the North of England and the Metropolis, and between other important centres where there are competitive services, owe their most interesting innovations in regard to comfort and speed to the invigorating rivalry between different railways, which has led them to emulate and surpass one another in their efforts to secure public patronage. Again, in regard to freight, it is common knowledge that the commercial public have had better attention where there has been active competition for their business, although in this case there has been a tendency to develop the abuses described in the latter part of this chapter. With regard to charges, competition has invariably ended in some form of combination.

The choice to be made in this matter is not between good and evil, but between two systems—monopoly and competition—each of which contains a mixture of good and evil. As regards quality of services, the best results appear to be achieved by the stimulus which competition alone seems able to afford; but too much of it tends to maintain charges at high figures, instead of allowing them to come down. The reasons why this must be so have already been referred to, and will be fully explained later. With railways in the hands of private monopolies, the operation of the

economic conditions referred to in the previous chapter would probably yield solid benefits, for if the railways were intelligently directed, which is the essential point, they would, in pursuit of their own gains, endeavour to attract sufficient business to fully employ their resources, and this could not be done without benefiting the community. The danger to be apprehended from this form of management lies in the conflict between temporary and permanent interests. An absolute monopoly could not of course be granted, as public safety and convenience would have to be placed entirely beyond the discretion of the railway managements. A private monopoly could only apply in the commercial sense, charges being variable within broad limits of reasonableness and equality to be set by law. If the law could not be made sufficiently elastic to liberate the railway managements in regard to charges and at the same time effectively protect the public, private monopoly would appear to be impracticable, and the choice would lie between competition and State monopoly.

Under State management the railways would be conducted with the main object of benefiting the public. Against the dangers from political influences, which it is apprehended State management would introduce, there would be a set-off in the abolition of that form of corruption, inseparable from competition, known as undue preference, which, owing to the technicalities surrounding the whole question of railway charges, has hitherto on the whole evaded the arm of the law. It should be stated at this point that unless there were some fundamental change in the basis for fixing charges, there would continue to be discriminating charges under State management, but scarcely such as could be called undue preferences. This question is fully discussed in Chapters IX. and X., and in Chapter XI. suggestions are made for such a change in the basis for fixing charges as would abolish preferences altogether.

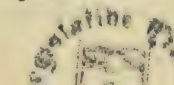
It is a mistake to suppose that political influences cannot operate under private management of railways. Most of the great British lines have good friends in

Parliament, who never fail to rise to the occasion whenever railway interests in general or the interests of their own particular line are threatened. If we turn to American railway history we find abundant evidence of corruption of private railway management by politics and *vice versâ*. Professor Hadley, in referring to the free-pass system, says: "It is a serious thing, not so much on account of the money involved as on account of the state of public morals which it indicates. When passes are given as a matter of mere favouritism it is bad enough. When they are given as a means of influencing legislation it is far worse, yet this last form of corruption has become so universal that people cease to regard it as corrupt. Public officials and other men of influence are ready to expect and claim free transportation as a right. To all intents and purposes they use their position to levy blackmail against the railroad companies." It may be urged that free passes are not granted to influence legislation in this country, but the questions may be asked: "How far is our present freedom from a like scandal due to the strictness of Government control?" and "Would not the relaxation of this rigour, with the object of permitting railway management to expand with the business needs of the community, tend to develop something of the kind?"

Some misconception exists as to the extent of railway competition. Many people seem to suppose that where there is more than one line connecting two centres one of them represents an unnecessary duplication. A little reflection will show that this view is far from correct. Two lines connecting the same centres do not run close together, which such a view assumes. They serve different districts, may cover a wide range of country, and besides connecting the two centres serve the intervening places in either direction. Take a concrete example. There are three lines connecting Manchester and Liverpool: the Lancashire and Yorkshire to the north, the Cheshire Lines to the south, and the London and North Western in the centre. There are three stations at each end, and three sets of trains running between the two cities, and at first sight much

unnecessary duplication, but it is clear that this can only apply to through business and terminal accommodation. The intermediate places, as well as the important towns of Wigan and St. Helens, would still require a line to connect them with Liverpool and Manchester. The waste of money in such cases has been in the duplication of terminal stations and their permanent upkeep, as well as the running of too many non-stop trains, although of late years there has been some kind of sensible arrangement in this respect.

The waste in connection with terminal passenger accommodation can scarcely have been so great as the waste in terminal goods accommodation and services. Passengers load and unload themselves, but goods must be carted to and from the depôts, and must be loaded and unloaded, thereby necessitating the provision of staff and appliances for the purpose. Where there is more than one goods depôt in the same town it is bound to happen that the lurries of the different companies will call upon the same firm, each obtaining a part load, when probably one lurry would suffice. Again, at each of the depôts the appliances, if not the staff, may only be partially utilised, whereas one set of appliances might perform all the necessary work. This happens where the companies do not compete for the conveyance, so that even without competition waste would continue if the railway system of the country continued to be owned and managed by separate concerns. The waste arising out of this condition of things is due fundamentally to diversity of management, and has merely been aggravated by competition. If the railway system of the country were parcelled out amongst a few private monopolies overlapping would continue, as well as other forms of waste inseparable from diversity of management in a form of business where interests cannot be insolated. In the railway business every step towards unity of administration is a step towards simplicity, economy, and efficiency. Two examples may be given to illustrate the advantages of substituting co-operation for competition as regards both economy of operation and public convenience.



Before the West Lancashire railway was taken over by the Lancashire and Yorkshire company there were separate companies running trains between Preston and Southport and large stations at each end, about half a mile apart in each case. After the transfer the Lancashire and Yorkshire company made it possible for trains from the West Lancashire line to run into the Lancashire and Yorkshire stations at each end, and having done this closed the West Lancashire stations at both places. This effected a permanent saving of expense in regard to maintenance and staff requirements at two large stations. The expenses previously due to cross-transactions between the two companies would also be abolished by the transfer, as well as the cost of the West Lancashire head office organisation, the work of which would be easily absorbed by the Lancashire and Yorkshire departments without any perceptible difference. Turning to the public aspect of this transfer, which abolished a certain amount of competition and according to popular views should have been attended with a curtailment of facilities, passengers have now the choice of two routes with one ticket. In effect, the public have a better service, which has probably been brought about by a reduction in the total number of trains. If the two lines had been continued under separate control and there had been no working agreement between them, that is, had there been unfettered competition, it is likely that there would have been a few more trains per day, but passengers would have been compelled to confine themselves to one route and one set of services, whereas now they have the choice of two routes and two sets of services for one fare. The transfer has conferred another important advantage upon the travelling public. Formerly, people who wished to travel from a station on one line to a station on the other had to change either at Preston or Southport and walk from one station to the other, instead of, as now, simply changing from platform to platform. On the whole, therefore, the elimination of competition in this case has been a decided gain to the public.

Where no actual amalgamation has taken place working agreements between competing companies have had similar beneficial results. One result of the agreement between the London and North Western and Lancashire and Yorkshire companies has been the establishment of a new through fast passenger service between the important towns of East Lancashire and London. Previously, travellers to London from Burnley, a town of 100,000 inhabitants, had to change at Manchester. If they wished to travel by the Midland route they had to change trains at Victoria station or go across the city to the Central station. If they preferred to go by the London and North Western route they had to walk to Exchange station, which adjoins Victoria, and take train thence to Stockport and change again, or cross Manchester to the London Road station. Now, such travellers may join a train which runs from Burnley to Euston without change, and the time spent on the journey has been shortened. This has not only improved the service between East Lancashire and London but provided better facilities between East Lancashire towns and Manchester, as well as made all the important places on the London and North Western line more accessible from Lancashire and Yorkshire stations and *vice versâ*. The competition of the Midland between Manchester, Victoria, and London may have stimulated the London and North Western and Lancashire and Yorkshire companies to make the improved arrangements. To that extent competition may have benefited the public, but it needs to be emphasised that the co-operation of the London and North Western and Lancashire and Yorkshire companies has caused the better public utilisation of the two systems. Competition alone could not have done this.

That the commercial benefits usually associated with competition cannot accrue from railway competition is obvious from the fact that capital invested in a railway cannot be withdrawn, neither can competitors be driven out of the field. Under these circumstances the introduction of competition means a permanent

increase of interest and maintenance charges and, so long as it is actively maintained, unnecessary operating expenses. The advent of competition into a district may effect a local and temporary reduction of charges and a more frequent service, but it also results in a permanent reduction of profits, unless the districts where each of the competitors has a monopoly are taxed to make up the deficiency on the competitive business, in which case the public and not the railway companies are the losers. The ultimate result, as experience has abundantly proved, is that rivals combine to maintain charges in competitive areas, so that in the end competition means loss all round. It may be urged that monopoly areas are protected by maximum charges fixed by law, and cannot therefore be taxed to make good losses incurred elsewhere; but this argument overlooks the wonderful elasticity of railway revenue, to which attention has been drawn, an elasticity probably greater than can be shown by any other business. It is this feature which justifies the enormous initial outlay, and which operates to obscure the futility of maximum charges as well as the losses of competition and the mistakes of over-capitalisation.

A scale of maximum charges, which might have been very little above cost of service ten years ago, may to-day, owing to the increased number of traffic units and the better utilisation of the fixed capital, be considerably above cost and therefore an imposition on the users of the railway. If Parliament and the public insist upon competition, it follows that the full utilisation of the capital resources, which reduces cost per unit, is pushed further and further into the future, and that a good deal of capital is worn out by natural decay and useless wear and tear instead of in public service. Only one portion of railway expenditure—cost of moving the traffic—varies at all in proportion to the amount of work done, and even parts of this cost, as already pointed out, remain stationary within certain limits. If, therefore, a given quantity of traffic pays the maintenance and general charges of the line plus a fair return on capital, as well as its own move-

ment expenses, a good deal of additional traffic may be handled without any increased cost whatever, and a great deal more at a very small additional cost, until the full carrying capacity of the line has been reached. It is this elasticity of railway revenue—its power of expansion between the minimum receipts necessary for paying fixed charges and interest, and the maximum carrying capacity of the line—which ought to have provided lower charges for the public and better returns for the railway investor; but, as matters have hitherto been managed, competition and diversity of management have been pulling in the opposite direction. If it had not been for this elasticity of revenue, coupled with the generous maxima fixed by Parliament, the wasteful character of the system must have exposed itself much sooner. Railways have been working their competitive business at little or no profit, and the result has been obscured because maximum charges, well above cost of service, have been available in monopoly districts, thus ensuring an aggregate profit. The fact that better services and lower charges have actually been obtained in competitive districts has helped to induce a belief in the beneficial operation of railway competition, whereas but for the power of the companies to maintain high charges in other districts its real effects must have been seen. The fundamental error of British railway regulation appears to have been the attempt to apply side by side the economically incompatible principles of monopoly and competition without realising the possibilities of good in railway monopoly or the possibilities of harm in railway competition.

The misapplication of official figures has also probably assisted to obscure the disadvantages of competition. The percentage of working expenses to gross receipts on British railways (63 per cent.) is practically the same as in other countries, and the popular inference is that there cannot be much waste. If, however, net receipts have a tendency to increase in greater proportion than gross receipts, working expenses should be lowest in proportion to gross receipts in the country with the greatest traffic density and the highest charges, which

is probably the condition of this country. Notwithstanding high charges, great density, and continual growth of traffic, the percentage of working expenditure to total receipts on British railways has risen 10 per cent. in twenty years, which may be taken as another indication that the natural elasticity of railway revenue has so far been overcome by forces beyond the power of skilful management to subdue.

The economic arguments against railway competition may be summarised :—

(1) Capital invested in railways cannot be withdrawn.
(2) Competitors cannot be driven out of the field.
(3) The competitors for any particular business are few and combination is easy.
(4) When competition is active it is not complete—at most points there is monopoly.
(5) Therefore competition must entail a constant waste of resources,
(6) Or it must end in combination.
(7) Therefore railways are naturally a monopoly.

A fairly general recognition of the economic advantages of railway combination as compared with competition is beginning to develop, but the moral aspect of the question does not appear to have been discussed.

Side by side with complaints of high charges there have always been complaints of undue preference, either in the matter of rates or facilities. It is grievances of this class and their demoralising effect upon business which lie at the root of most of the friction which has hitherto existed between the railways and the traders. High rates, if not absolutely prohibitive, inflict less injury upon business as an institution than preferences which benefit one trader at the expense of another. If it can be shown that the elimination of competition would lessen this source of resentment the case against it in the railway business will be greatly strengthened.

It will scarcely be denied that railway competition has tended to aggravate inequalities of power and to reduce the standard of commercial morality. Strong firms at competitive points have been able to intimidate railway companies and obtain advantages which it was

not only impossible to grant all round, but which, in effect, added to the natural disadvantages of traders less favourably situated. As most companies have districts where they have monopoly, it is obvious that every concession wrung out of them by pressure of competition must, in its ultimate effect, be obtained at the expense of such of their customers as are not able to bring such pressure to bear. Maximum rates are worse than useless under such circumstances, for, as already pointed out, in conjunction with competition they prevent reductions which should ensue from increased business. Parliament have legislated from time to time with a view to checking undue preferences; but to place the railways within reach of active or even passive intimidation by introducing competition, and then legislate that they shall not give way to it, is to invite clever evasions of the law or, worse still, to drive illicit transactions beneath the surface where they are liable to be carried on without reference to the law at all. The point to emphasise in regard to such a state of things is that shrewd and unscrupulous persons are usually the first to discover it and exploit its possibilities, whereas straightforward and law-abiding people either do not realise what is going on or, if made aware of it, are reluctant to take advantage of the situation. A striking example of the lengths to which intimidation of railways may be carried is provided by the story of the Standard Oil Company of America. This great trust brought itself into such relations with the railways as to be able to dictate not only the amount of its own freight but also that of its rivals, who were ultimately absorbed on the Standard Oil Company's terms or annihilated. Probably the force of public opinion alone would prevent anything so flagrant from happening in this country; but this emphasises the necessity for maintaining such a healthy state of the public mind—a protection more potent, more subtle, and more searching than the law. Legal prohibitions have the tendency to confer negative sanction in practice upon everything not strictly within the letter of the law, whereas public opinion penalises offences which lie beyond the reach of specific enact-

ments. The finest, the most complete, and the most effective safeguard for commercial morality must always be a healthy universal public opinion. The acquisition of the railways by the State should introduce a better guarantee of impartiality as between the strong and the weak, and at the same time a wider public interest in the methods of administration.

Notwithstanding the salutary restraints of public opinion, it is to be feared that many honourable firms have been compelled in self-defence to ask railway companies for concessions which have injuriously affected weaker or less favourably placed houses, many of which must have been driven out of business. This question has therefore a not unimportant bearing upon the most prominent problem of present-day politics, namely, the unequal distribution of wealth. The tendency of wealth to accumulate in few hands has been needlessly accelerated by preferences given to the strong at the expense of the weak.

By way of illustrating the more subtle forms of preference a typical example may be given.

Certain goods are sent from A to B and, as the consignee at the latter place has no warehouse, the goods are stored by the railway company pending instructions for disposal. The goods are eventually delivered, on the consignee's instructions, to a third party, and the railway company debit the consignee's account with the storage charges, the carriage having been paid by the sender. The consignee refuses to pay the storage charges, contending that the goods were sold on commission, and that according to custom the sender is liable for all terminal charges. The railway company thereupon approach the sender for payment, but he declines on the ground that the goods were sent for immediate delivery. As both the sender and consignee are placed at competitive points, the railway company cannot afford to quarrel with either, and the matter is not pressed. The advantage in these matters under competition must always rest with the most influential and unscrupulous persons. The questions which a railway goods manager asks before deciding

such points are "How much is the firm's traffic worth?" and "What are the points between which it is carried?" The question "Is it just?" is seldom, if ever, considered by itself. Take the question of claims for goods lost or damaged. If a poor customer has a claim, and if his traffic is not competitive, he will have to force the matter. If an influential customer whose traffic is competitive has a claim, even if it be not strictly legal, the company will probably settle with comparative promptness. Given unfettered competition, powerful and not strictly honourable firms do practically as they please with the railway companies. Given complete monopoly, the railways can do practically as they please with the public, although persistence in such a course would endanger their permanent interests.

The difficulties with which railways at competitive points have to contend in collection of their money may be gathered from another example which happened recently.

A firm deducted from their accounts each month numerous small items for sundry special services, their contention being that the rate covered all the services performed. The case came up before a conference of the railways concerned and they agreed to enforce payment. When the firm saw that the companies were united they promised payment, but asked for copies of the entries. This entailed an enormous amount of labour, as the deductions covered a long period, the entries for one company alone reaching some hundreds. When one of the railway collectors called for payment he noticed amongst a bundle of papers all the original accounts, so that the firm had either deliberately or through carelessness asked for the particulars unnecessarily. Firms frequently put off payment on the pretext that they have not received accounts, and copies have to be supplied. Other vexatious deductions are also made without reason. Goods which have been sold "carriage paid" are deliberately consigned "carriage forward" to obtain extra credit. On the other hand, it ought to be stated, that owing to the conditions under which railway goods clerks often work very many errors are made,

causing the public to be suspicious, and often subjecting them to considerable inconvenience and annoyance.

It is unlikely that any fresh legislation could effectively prevent undue preferences in the face of continued competition, whereas the elimination of competition by placing the railway management, whether in the form of private or public monopoly, beyond the reach of the intimidation which is the underlying cause of all undue preferences, would put all firms upon an equal footing as regards railway services. What unchecked manipulation of the railway interest may lead to, in many cases as a direct consequence and in others by providing a field for the exercise of corrupt activities, is well illustrated by the present state of business morals in the United States.

Whatever may have been its effect upon the character of external business, the influence of railway competition upon railway administration cannot have been elevating. A strict observance of the law has often meant loss of traffic, and it would be matter for surprise if the dictates of personal ambition, allied with a genuine desire to serve the interests of employers, had not frequently discovered ways and means of evading the law. Cases like those of the Denaby Main Colliery Co. *v.* the Manchester, Sheffield and Lincoln Railway, Evershed *v.* London and North Western Railway, and others, in which the companies concerned were penalised for granting what were held to be undue preferences, together with the growing intimidation of traders, seem to have driven the railway companies in the direction of informal combination as the only means of meeting an intolerable situation. Such arrangements were of a secret and therefore precarious character. Legal sanction and publicity were necessary to render them effective. The temptation to contravene their provisions, especially in the absence of public knowledge of their existence, was always present. It was advantageous for competitors to combine to maintain their position against intimidating traders, but it was more advantageous from the point of view of each of the parties to an agreement to get hold of business from the others by secret con-

cessions.[1] The position of traffic officials under these circumstances must have been most difficult. Obligation to carry out an agreement would often conflict with a natural desire to extend business. The mere suspicion that a breach had been committed by one of the other parties would provide an excuse for repudiating the contract, and it is not surprising that such forms of combination often came to an untimely end, and that a new period of competition, more intense and reckless, ensued, causing greater expenditure and sacrifices than ever in order to get hold of business. The nearer a railway agreement approaches consolidation of the interests of the parties to it the easier it is to work, and the more effectually it fulfils its purpose. Railways are naturally a monopoly, and the attempt to regulate them by means of competition has been a mistake which has inflicted enormous losses upon the country; and the error has been accentuated by the fact that all along the operations of commerce have been hampered by needless friction and injustice. The railways have been at once the instruments and victims of an impossible system, and this accounts for the Ishmaelite character they have acquired in the public estimation.

The futility of competition in the railway business was realised by the most thoughtful students of the subject from the beginning. So far back as 1836 Mr. Morrison, of Inverness, in the course of a speech stated that railways must naturally be a monopoly; that competing lines would combine; and that fixed maximum rates would prove useless. Robert Stephenson recognised the same truth when he said, "Where combination is possible competition is impossible." These men were ahead of the time. In the four years from 1844 to 1847 there were chartered by the British Parliament 637 separate railway undertakings, with a total authorised length of about 9,400 miles, or less than an average of 15 miles each. The inconvenience of these short independent lines was soon demonstrated, and a movement for their consolidation into through routes began. This was the

[1] Hadley, "Railroad Transportation."

first intimation from the inherent character of the railway business that competition was impossible. The chain of events which have gone to confirm this may be set down briefly :—

(1) The establishment of the Railway Clearing House in 1842.

(2) The passing of the Railway and Canal Traffic Act, 1854, which compelled all companies to afford facilities for the receiving and forwarding of through traffic.

(3) The passing of the Railway and Canal Traffic Act, 1888, which arose out of the dissatisfaction of the trading public with the inconsistencies and anomalies of the numerous scales and classifications of the companies' separate Acts, and resulted in the adoption of uniform scales and classifications for all companies.

(4) The difficulty of effecting economies in freight handling, apart from extensive co-operation, which has manifested itself in recent years. The end of this stage has not yet been reached, and there are indications that it may not be reached until a unification of the whole railway system of the kingdom has been accomplished.

If the public are not disposed to pay higher charges, which may be taken for granted, the only escape from the present situation lies in the elimination of competition, so that the position reached by Morrison seventy years ago is at last being accepted at the hands of experience. The only question to be determined apparently is : "Shall the railways be a private or a public monopoly?"

From the public as well as the railway point of view, and subject to suitable Government supervision (if in the face of past experience such supervision is not impracable), working agreements among the companies or actual amalgamations are steps in the right direction ; but there are not wanting signs that conflicting interests may either prevent the effective operation of such combinations or lead to such an extension of the principle as would demand State ownership. The agreement between the London and North Western and Midland companies,

for instance, has brought this combination into conflict with the proposed combination of the Great Northern, Great Central, and Great Eastern railways. The principal Midland passenger terminus in Manchester is the Central station, which is the property of the Cheshire Lines Committee, an undertaking jointly owned by the Midland, Great Northern, and Great Central companies. One of the advantages proposed to be conferred upon the public by the London and North Western and Midland agreement was the availability of passenger tickets over either company's route between places served by both companies. Under this arrangement a passenger holding the return half of a London and North Western ticket was to be allowed, if he so wished, to travel between St. Pancras and Manchester over the Midland route. Owing to the objection of the Great Northern and Great Central companies, however, the agreement between the London and North Western and Midland companies is subject to certain exceptions in respect of the Cheshire Lines undertaking. If difficulties of this kind should prove insurmountable, a strong impetus will be given to the movement for solution of the problem by complete unity of management under the State.

CHAPTER VII

DIVERSITY OF MANAGEMENT

THE number of separate railway companies in the United Kingdom at the present time is well over 250, but the number of separate managements is about 130. If these managements represented single companies with no other interests, railway management in this country would still be able to claim a diversified and even complicated character, seeing that these concerns would be continually exchanging business with each other; but these managements embrace lines owned by one company and worked by another, or, it may be, two or more others, while other of these subsidiary undertakings are jointly owned and jointly operated. One joint line —the Cheshire Lines Committee—is owned by three companies, but has a separate management and vehicle equipment, and engine-power is provided by one of the owning companies. Apart from these complications one has to bear in mind the extensive running powers exercised by the companies over each others' lines.

What goes on behind the scenes in regard to general arrangements and working, division of responsibility, and allocation of debits and credits in the presence of such conflicting interests might well be considered indescribable. It is, however, necessary that some idea should be given in order to indicate the increase of convenience and the great saving in money that would be possible under unity of management.

The "Railway Diary and Officials' Directory (1909)," published by Messrs. McCorquodale & Co., Ltd., gives a list of seventy-one joint railways which have separate

officials. The following is a selection from that list :—

Name of Joint Line.	Mileage.	Owners.
Cheshire Lines Committee	142	Great Northern, Great Central, and Midland.
East London Joint Committee	5	Great Eastern, London, Brighton and South Coast, London, Chatham and Dover, Metropolitan, Metropolitan District, and South Eastern.
Kilsyth and Bonnybridge	8½	Worked by Caledonian and North British, but owned by a distinct and separate company.
Methley	6	Great Northern, Lancashire and Yorkshire, and North Eastern.
Portpatrick and Wigtownshire	82	Caledonian, Glasgow and South Western, London and North Western, and Midland.
South Yorkshire Joint Line Committee	20	Great Central, Great Northern, Lancashire and Yorkshire, Midland, and North Eastern.
Dumbarton and Balloch	5½	Caledonian, North British, and Lanarkshire and Dumbartonshire. The latter company's own line is worked by the Caledonian company.

The seventy-one joint railways mentioned in Messrs. McCorquodale's publication form only a part of the joint railway undertakings in the United Kingdom. Most of the principal railways embrace a number of subsidiary lines leased, jointly owned, or jointly worked along with other companies.

According to the Board of Trade Returns the composition of the London and North Western line is as given below, but there are many other enterprises, properties, and interests which the London and North Western company share with other concerns :—

Name of Line.	Remarks.
1. London & North Western.	
2. Charnwood Forest.	Worked solely by London and North Western company.
3. Harborne.	
4. Mold and Denbigh Junction.	
5. Shropshire Union.	Leased to and worked by London and North Western Company.
Also part of following :—	
6. Ashby and Nuneaton.	Jointly owned with Midland company.
7. Birkenhead and Branches.	Jointly owned with Great Western company.
8. Brecon and Merthyr and London and North Western Joint.	
9. Great Northern and London and North Western Joint.	
10. North Union.	Jointly owned with Lancashire and Yorkshire company.
11. Preston and Longridge.	Jointly owned with Lancashire and Yorkshire company.
12. Preston and Wyre.	Jointly owned with Lancashire and Yorkshire company.
13. Rhymney and Nantybwch.	Jointly owned with Rhymney company.
14. Shrewsbury and Hereford.	Jointly owned with Great Western company.
15. Shrewsbury and Wellington.	Jointly owned with Great Western company.
16. Shrewsbury and Welshpool.	Jointly owned with Great Western company.
17. Tenbury.	Jointly owned with Great Western company.
18. Vale of Towy.	Jointly owned with Great Western company.
19. West London.	Jointly owned with Great Western company.
20. West London Extension.	Jointly owned with Great Western, London, Brighton and South Coast, and London and South Western companies.
21. Whitehaven, Cleator, and Egremont.	Jointly owned with Furness company.
22. Wrexham and Minera Extension.	Jointly owned with Great Western company.

The other great railway lines are similarly constituted.

By way of further illustrating the point under notice, we may follow the course of a London and North Western train from Manchester to York.

After leaving Exchange station, Manchester, we immediately invade the Lancashire and Yorkshire company's territory, passing through the centre of that company's Victoria station—a circumstance which strikes one as being somewhat absurd, the question which naturally suggests itself being, "Why cannot both companies use one terminus?" Keeping to the Lancashire and Yorkshire line for the next half-dozen miles we again strike London and North Western territory at Stalybridge, where the Great Central company are part owners of the station. From Stalybridge to Huddersfield, 19 miles, no foreign ground is touched, but at Huddersfield we again meet with the Lancashire and Yorkshire, who join at the station. Huddersfield to Heaton Lodge junction, a few miles, is purely London and North Western, although used by the Lancashire and Yorkshire company's trains. From Heaton Lodge junction the Lancashire and Yorkshire line has to be used for about a mile to Mirfield, another station jointly owned by the London and North Western and Lancashire and Yorkshire companies. After leaving Mirfield we run over another short bit of the Lancashire and Yorkshire line before again reaching purely London and North Western ground. The journey to Leeds, another 13 miles, is then continued on the London and North Western line, but on arrival there we again encounter joint men in joint uniforms, and a station jointly owned by the London and North Western and North Eastern companies, which is separated from the Midland company's terminal station by a wall. After leaving Leeds we pursue our way to York over the North Eastern company's line, and there meet with the trains of several other companies who have used running powers to the same destination.

The run described above is typical of many that are daily being made on British railways.

When a consignment of goods sets out from a station on a line jointly owned by four or five companies, takes a journey of (say) 100 miles, and passes over other lines, some of them also jointly owned, and finds its destination on another similarly constituted line, we have a set of circumstances by no means impossible, and when to this is added complications like the following: "In calculating the distance over which any merchandise is conveyed, and for all purposes of rates and charges, the Runcorn bridge is to be calculated as 9 miles, and the junction railway authorised by the Stockport, Disley, and Whaley Bridge Railway Act, 1855, is to be calculated as three-quarters of a mile" the reason why even railway officials sometimes fail to comprehend the mysteries of railway accounts and charges begins to be understood.

In order to further illustrate the entire absence of anything in the nature of uniformity in British railway administration a more detailed account of a few joint lines is given below, and it should be stated that there is not even uniformity in the method of dividing receipts and expenditure between the interested parties. In some cases the division is made according to money and in others according to tonnage, and (where fixed) the fractional proportions also vary; for example, one interest might be represented by two-sevenths of fifty-five ninety-ninths.

The following particulars relating to the joint railways named are taken from the Board of Trade Returns for 1906:—

Birkenhead Joint line.—56½ miles in length. Separate capital account amounting to £2,550,000 vested jointly in the Great Western and London and North Western companies. No separate revenue account and owns no rolling stock.

Cheshire Lines Committee.—The joint property of the Great Central, Great Northern, and Midland companies, and the capital is included in the returns of those companies. Owns 141 miles of line, has a separate revenue account amounting to over £1,000,000 per annum, owns no locomotives, but owns 4,267 vehicles. This

joint line has a separate board of directors, three auditors, a manager, secretary, engineer, accountant, carriage and wagon superintendent, and storekeeper.

Somerset and Dorset.—This line is worked by a joint committee of the London and South Western and Midland. It has a separate capital account of £2,456,209, a separate revenue account of over £200,000 per annum, owns 76 locomotives and about 1,500 vehicles.

Great Northern and Great Eastern.—This joint line has neither separate capital nor revenue accounts and owns no rolling stock. It is 123 miles in length.

Great Central and Midland Joint Committee.—Owns 28 miles of line, and has a separate capital account of £2,000,000, but the revenue is merged in the accounts of the owning lines. It has no rolling stock.

South Yorkshire Joint Lines Committee.—This line, which is over 19 miles in length, is the joint property of the Great Central, Great Northern, Lancashire and Yorkshire, Midland, and North Eastern companies. No separate capital or revenue accounts, and no rolling stock.

Methley.—Owned by the Great Northern, Lancashire and Yorkshire, and North Eastern companies. Has no separate capital account, but has a revenue account of £12,000 per annum. In this case the locomotive power and rolling stock is provided by the companies working the traffic. Length, 6 miles.

As may be imagined, diversity of management is responsible for much accounting both as regards receipts and expenditure. The accounts which find their way into the hands of the public are voluminous and complicated enough, and would continue to be somewhat complex with the present system of basing charges on distance, even apart from diversity of management, but these accounts are only a portion and the most simple portion of the accounting with originates through the carriage of goods by railway as now conducted.

A certain firm had accounts with two railway companies in the same town. The firm's account for one month from one of the companies amounted to £50 and contained 400 entries, 296 of which were to stations on

other companies' lines. The 296 foreign entries were made up as follows :—

To stations on English railways owned by one company each...	266	consignments	to	81	stations
To stations on English lines owned by two or more companies	9	„	„	7	„
To stations on Irish lines	18	„	„	10	„
To Irish ports ...	3	„	„	2	„
	296 consignments to 100 stations				

The 100 stations were divided between 18 separate railway undertakings apart from the sending company, 14 of which were owned by one company each, the remaining four being jointly owned undertakings. Many of the consignments would pass over other lines, to which the entries in the accounts gave no clue, and some of these would probably be jointly owned concerns, and each of the owning interests would require credit for their mileage portion of the carriage. To trace each of these consignments from beginning to end and find out exactly what railways were interested, and in what proportions, one would require to know the exact and complete route in each case.

Although there were only 100 receiving stations it does not follow that there were only 100 routes. Consignments might be sent to different companies in the same town, and it would not necessarily happen if all the traffic for one town was sent to one company that every consignment would go by the same route. Routes are chosen by the sender or consignee or, if not so chosen, by the sending company. When the companies fix the routes strange things happen as a matter of course. All the companies have expert routing clerks, who map out the best paying routes, consequently goods are frequently sent a long way round to get mileage.

The accounting incidental to diversity of management is probably a trifle compared with the extra operation which it entails. The unnecessary haulage performed in

the course of a year owing to the present system must amount to millions of ton miles, not to speak of empty wagon haulage in the backward direction. Goods going from North to South are taken across country from East to West and West to East before they begin moving Southwards, and the same happens in the opposite direction. Similarly, goods going East or West are moved Northwards and Southwards, irrespective of direct routes, to obtain mileage for the companies controlling the route. The fact that rates are based on the shortest route has no effect on this state of things. If the direct route between two points measures 100 miles, of which the sending company has but 20, and there is an alternative route measuring 120 miles, of which they have 60 and some other company or number of companies the remainder, they will send it the 120 miles journey and pocket receipts as for 50 or 40 miles according to arrangement, or want of arrangement respectively, with the other parties to the rate. That is to say, if the sending company persuade the company or companies who possesses the second half of the 120 miles route to accept receipts as for 50 instead of 60 miles over such route, the sending company will also get 50 miles out of it, or one half the rate. If no such arrangement can be made, that is, if the other parties to the route demand their full 60 miles, the sending company will have to take receipts as for 40 miles, although they carry the goods 60. It pays them to ignore the extra haulage rather than send the goods over the direct route, of which their mileage is but 20. Greater distances are constantly ignored in this way, and this is a strong argument for ignoring the distance basis of charges altogether. So long as this basis is maintained along with competition and diversity of management there will continue to be unnecessary haulage, congestion, delay, over-capitalisation, and poor utilisation of the railway system of the country.

The task of consolidating all the separate railway interests for public purposes is accomplished by co-operation amongst the companies by means of conferences and correspondence, which result in through arrangements, through rates, and bookings. The

Railway Clearing House, to which all the important companies are parties, acts as umpire by watching the movements of rolling stock, and charging demurrage for its undue detention; also by allocating to each company its proportion of earnings on through business.

In order to watch the movements of rolling stock which is constantly passing beyond the limits of the owning line, the Clearing House employs quite an army of number-takers, who are stationed at junctions throughout the country. Referring to this part of the function of the Railway Clearing House, Mr. E. R. McDermott, in his book "Railways," says :—

"In one year these officers traced nearly 13 millions of journeys of carriages, wagons, and sheets from their owners' lines. To some extent, but in the minority of cases, the companies over whose lines this rolling stock passed from one cause or another failed to use due diligence in returning the stock to its owners; in some cases they employed the stock for the purposes of their own traffic; and in other cases perhaps used the trucks and wagons for warehousing purposes. The total number of days represented by these delays was upwards of a million, or 2,700 years. For the purpose of arriving at these results, and enabling the Clearing House to make their claims upon the companies for the use of stock not owned by themselves on their own lines, a total of more than 19 million entries were required to be made by the number-taking staff."

Further on in the same work Mr. McDermott says :—

"The whole of this complete system of check and counter-check rests upon the basis of individual returns and abstracts. These are reckoned by hundreds of thousands." And again: "Four hundred clerks arranged at their capacious desks receive, arrange, and post from these abstracts, which are sent in from over 500 junction stations. The number of these abstract junction returns exceeds three-quarters of a million in the year."

Demurrage is charged according to class of stock from first-class carriages to low-grade wagons, and extends to tarpaulins and sheets.

With regard to the traffic departments of the Railway

Clearing House, namely, goods, parcels, and passengers, a brief description of the career of a railway invoice may assist the reader to appreciate the nature and extent of their labours.

When a consignment of goods is handed to a railway company the consignor is expected to make out a consignment note. From this the invoice to the destination station is prepared, with the assistance of the classification and rate books. Each invoice form is provided with separate cash columns for "paid" and "to pay" charges. If the consignor pays the charges the amount of carriage is entered in the "paid" column, and if the consignee pays the amount is entered in the "to pay" column. A copy of each invoice is kept by the sending station, and the original despatched to the destination station along with the goods. All the invoices between pairs of stations for each month are transferred to what are called "abstract" forms and totalled. For example, all the invoices for traffic received at Burnley (Lancashire and Yorkshire) from Broad Street, London (London and North Western) by the same route would be entered by Burnley on a "Received" abstract form and totalled, the amounts shown in "paid" column on invoices being entered in "paid" column on the abstract, and similarly with the "to pay" items. In the same way all invoices sent from Burnley (Lancashire and Yorkshire) to Broad Street (London and North Western) would be entered by Burnley on a "Forwarded" abstract form, "paid" and "to pay" items being entered in the columns provided on the abstract for the purpose. Broad Street would go through precisely the same operations; thus, it would follow, provided there were no errors, that one set of abstracts should balance another as illustrated below :—

	Burnley.			Broad Street.		
	£	s.	d.	£	s.	d.
Received paid	129	10	0	356	8	0
Received to pay	58	16	11	88	13	2
Forwarded paid	356	8	0	129	10	0
Forwarded to pay... ...	88	13	2	58	16	11
	£633	8	1	£633	8	1

If all the traffic between these stations did not travel by the same route, as many separate abstracts as there were routes would have to be made out. If a station issued invoices to 100 foreign stations during a particular month, and there were 120 routes, 120 abstracts would have to be made out.

The abstracts for each station are summarised, the summaries containing columns similar to those on the invoices and abstracts. These summaries are sent by the stations to the audit departments of their own companies, while the abstracts are sent direct to the Railway Clearing House, which apportions the receipts between the companies concerned. The companies' audit departments, by means of the summaries, check the Railway Clearing House apportionments. Inaccuracies, which are numerous, owing to the conditions under which railway clerkage is often performed, and invoices received without charges through absence of rates between the points concerned, or from any other cause, are kept out until the charges are corrected or entered up.

The parcels traffic is dealt with on similar lines, waybills taking the place of invoices.

The Clearing House are also supplied with statements respecting the issues of passenger tickets to foreign stations, and check these with collected tickets.

These are the main features of the system of accounting, so far as regards receipts, imposed upon the railway business by diversity of management. There are other matters, such as apportionment of compensation claims for both goods and passengers, overcharges, undercharges, and allowances of various kinds.

One or two more short quotations from Mr. McDermott will serve to corroborate what has been said as to the amount of work performed by the Railway Clearing House :—

"In order to work out the settlement of an account between each pair of stations . . . the Clearing House officials often use in the process of eliciting truth, checking error, and distributing their portions to each company, not less than eighteen separate forms, printed for facility in reference, in red or black."

"Mileages upon which the through traffic receipts are apportioned to the companies interested are made up from the measurements given on the engineers' diagrams supplied by the companies, and these mileages, which number upwards of a million and a quarter, are recorded in the ten volumes which comprise the Clearing House distance book."

"There are upwards of 40,000 pairs of stations between which through tickets are issued every month, and the adjustment of the accounts for this portion of the railway traffic is transacted by a staff of 400 clerks formed into seven divisions."

The remarks on page 84 as to the various lines over which a consignment of goods may pass apply equally to passenger tickets.

The present staff of the Clearing House numbers about 3,000, and it should be remembered that this immense staff is mainly engaged in checking and arriving at results from information supplied to them by the companies, so that the Clearing House staff represents but a part of the clerkage which is necessary owing to diversity of management.

Mr. McDermott's book, "Railways," contains a full and interesting account of the history and operations of the Railway Clearing House, and those who wish to know more about it will be well rewarded by a perusal of the volume. Specimens are given showing the mileage apportionments on passenger tickets, which are worth a study in relation to the diversified character of British railway administration and how its difficulties are overcome by the Railway Clearing House.

The Railway Clearing House may be said to represent the attempt of private enterprise to unify the railway system of the United Kingdom, in spite of the diversified character imposed upon it by Parliament. It is a marvel of system and organisation carried on, it is true, at great cost, owing to the nature and extent of the work involved, and, considering the parties to it are active competitors in many fields, is a fine example of business co-operation. The great pity is that it ought not to be necessary at all. It simply stands for so much

organising skill absolutely wasted. If the British public want competition and diversity of management an institution like the Railway Clearing House is necessary, and the public have no right to complain of its cost. They cannot have it both ways.

Division of receipts in regard to jointly owned lines, as between the owning companies, is performed by the accountants of the owning companies, and traffic earnings between stations on such lines and foreign lines, some of which may also be jointly owned, contribute their share of added complication to the art of railway accounting.

Turning to railway expenditure, diversified management is responsible for a great deal of accounting. Joint enterprises, joint stations, joint rolling stock, and joint staff, the cost of which are debited by the company having charge of the accounts in varying proportions, such as, for example, twenty-one thirty-ninths, and the vouchers for which have to be examined, entail much labour, skill, patience, and expense.

So numerous and so perplexing are the cross-transactions between the many railway systems in the United Kingdom in regard to both receipts and expenditure that there are innumerable details which have to be settled on the principle of *laissez faire*, and each company tries to get what advantage it can.

CHAPTER VIII

THE COMPLAINT OF HIGH CHARGES

THE complaints of traders against British railway companies are mainly concerned with the question of charges, and are of three kinds: (1) That charges are too high; (2) that they are unequal and complex; (3) that they favour the foreigner. The ideal of which the traders are in search may be inferred from the nature of their complaints. Apparently it is cheapness, uniformity, and simplicity of charges for all.

The present chapter will be confined to the discussion of the first of these complaints—that charges are too high—which really means that transport of goods by rail in the United Kingdom costs more than in other countries and that, therefore, the foreigner is better off in this respect.

Railway rates for the conveyance of goods in the United Kingdom are regulated by scales fixed by Parliament, or according to special terms within the Parliamentary scales agreed between the railways and the traders.

The present Parliamentary scales came into operation on January 1, 1893, under the authority of a series of Acts of Parliament, entitled The Railway Rates and Charges Orders Confirmation Acts, 1891 and 1892. These Acts represented the final expression of inquiries extending over ten years.

Briefly, the effect of this legislation was the substitution of practically uniform scales and a uniform classification for the separate and varied scales and classifications of the companies' private Acts, an all round reduction in charges, and a new method for calculating those charges. Instead of charges increasing with each mile of distance

beyond a minimum of six miles, as had previously been the case, for the first time the principle was admitted that charges for conveyance of goods by railway should diminish per mile with increased distance. The need for this principle is self-evident to all students of railway transport, and the principle will have to be carried much further before the problem of railway charges is finally disposed of. One of the objects of this book is to show that in the complete abolition of distance as a basis for fixing railway charges lies the only possible solution of this long-standing difficulty. Parliament had partly recognised this truth by conceding the principle of rate grouping under the Act of 1888, whereby railway companies were allowed to apply the same rate to a number of places within the same area, provided the distance was not unreasonable, and the further recognition of it as embodied in the present authorised scales marked another distinct move towards the abolition of the distance basis. The subsequent extension of the movement by the companies may be regarded as another outward sign that invisible economic forces are working towards the same end. The consummation of this great reform in railway transport charges is only a question of time. The distance basis limits the area and scope of business, as the railway companies themselves freely admit. The pressure of increasing population, together with the advancing standard of life, must sooner or later sweep away the last vestige of a barrier which tends to keep the people and the country's resources apart.

The scales for charges as fixed by the Acts of 1891 and 1892 are divided into six parts, as follows :—

(1) Goods and minerals.
(2) Animals.
(3) Carriages.
(4) Exceptional.
(5) Perishable merchandise by passenger train.
(6) Small parcels by merchandise train.

Each rate is made up of two parts, (*a*) conveyance, (*b*) terminals. The conveyance scale as to goods and minerals given below is that fixed for the Midland company :—

RATES IN RESPECT OF MERCHANDISE COMPRISED IN CLASSES A, B, C, 1, 2, 3, 4, AND 5.

In respect of Merchandise comprised in the undermentioned Classes.	Maximum Rates for Conveyance. For Consignments except as otherwise provided in the Schedule.			
	For the first 20 Miles, or any part of such Distance.	For the next 30 Miles, or any part of such Distance.	For the next 50 Miles, or any part of such Distance.	For the remainder of the Distance.
	Per Ton per Mile. d.	Per Ton per Mile. d.	Per Ton per Mile. d.	Per Ton per Mile. d.
A ...	1·15	0·90	0·45	0·40
B ...	1·25	1·00	0·80	0·50
C ...	1·80	1·50	1·20	0·70
1 ...	2·20	1·85	1·40	1·00
2 ...	2·65	2·30	1·80	1·50
3 ...	3·10	2·65	2·00	1·80
4 ...	3·60	3·15	2·50	2·20
5 ...	4·30	3·70	3·25	2·50

The following terminals are common to all the Railway Rates and Charges Orders Confirmation Acts of 1891 and 1892, with two exceptions :—

In respect of Merchandise comprised in the undermentioned Classes.	Maximum Terminals.				
	Station Terminal at each end.	Service Terminals.			
		Loading.	Unloading.	Covering.	Uncovering.
	Per Ton. s. d.	Per Ton. s. d.	Per Ton. s. d.	Per Ton. d.	Per Ton. d.
A ...	0 3	—	—	—	—
B ...	0 6	—	—	—	—
C ...	1 0	0 3	0 3	1	1
1 ...	1 6	0 5	0 5	1·50	1·50
2 ...	1 6	0 8	0 8	2	2
3 ...	1 6	1 0	1 0	2	2
4 ...	1 6	1 4	1 4	3	3
5 ...	1 6	1 8	1 8	4	4

The variations between the present Parliamentary scales of different companies are designed to adjust differences of conditions to some extent, but are so slight that they do not affect the argument advanced in Chapter IV. as to the absurdity of applying a general scale of charges to particular conditions. The scales are practically uniform for all companies.

With regard to the classification of merchandise traffic as fixed by the Acts of 1891 and 1892, a selection is given below by way of illustration, although it should be stated that the companies have since improved the classification from the public point of view, not merely by the inclusion of additional articles, but by placing many articles in lower classes, and an automatic reduction of charges has of course resulted.

CLASSIFICATION.

Class A.—Coal, gravel, iron-ore, manure, sand, undressed stone, &c.

Class B.—Bricks, cement, china clay, pig iron, turnips in bulk, &c.

Class C.—Flour, all kinds of grain, heavy iron and steel work, linen waste for paper-making, marble in blocks, pit-wood, potatoes in bulk, sanitary tubes, wood-pulp, &c.

Class 1.—Ale, bolt, nut and nail machines, builders' implements (not new), castings, dried and cured fish, raw cotton, lime-water, oils (not dangerous), pumps, treacle, vegetables, vinegar, wheels, &c.

Class 2.—Agricultural machinery, bacon, bedsteads, biscuits, butter in casks, celery, china in casks or crates, lemons, pickles, pork in brine, sago, starch, tin, twine, iron window frames, yarn, &c., in bales, bags, &c.

Class 3.—Baths, blankets, trunks, brass-work, calicoes, heavy drapery, cotton and linen thread, cutlery, floor-cloth, mixed groceries, hardware, joiners' work, nickel, shuttles, gas or oil stoves, tea, yarns, twist weft except silk, &c.

Class 4.—Asparagus, boots and shoes, light drapery, furniture in vans, glass, soft felt hats, knitting, &c., machines in parts, fresh meat, telegraph and telephone instruments, wire gauze.

Class 5.—Barometers, bicycles, clocks, feathers, cut flowers, millinery, musical, &c., instruments, pictures, sewing and knitting machines fitted up, silk, straw goods, &c.

Two specimen rates (Class 3) are given below to illustrate the amount of labour involved in the calculation of railway rates on the distance basis :—

The distance from A to B (say) is 10 miles.

The distance from A to X (say) is 200 miles.

What will be the Parliamentary rate for 1 ton of goods (Class 3) from A to B and from A to X?

A TO B (CLASS 3). 1 TON 10 MILES.

	d.
For Conveyance, 10 miles at 3·10d. per mile	31·00
Station Terminals, 1s. 6d. at each end	36·00
Terminal Services, viz., Loading	12·00
Unloading	12·00
Covering...	2·00
Uncovering	2·00
	95·00

Total, 7s. 11d. (Conveyance, 2s. 7d. ; Terminals, 5s. 4d.).

A TO B (CLASS 3). 1 TON 200 MILES.

	d.
For Conveyance, 20 miles at 3·10d. per mile	62·00
„ 30 „ 2·65d. „	79·50
„ 50 „ 2·00d. „	100·00
„ 100 „ 1·80d. „	118·00
Station Terminals, 1s. 6d. at each end	36·00
Terminal Services, viz., Loading	12·00
Unloading	12·00
Covering...	2·00
Uncovering	2·00
	423·50

Total, 35s. 4d. (Conveyance, 30s. ; Terminals, 5s. 4d.).

The above examples do not include the service of collection from the sender at one end nor the service of delivery to the consignee at the other, and as most British railway rates now include those services, 2s.[1] per ton at each end should be added to make the examples into "collected and delivered" rates, increasing them to 11s. 11d. and 39s. 4d. respectively. The services of collection and delivery and other special services, such as weighing, storage, &c., are at the option of the railway companies' customers, and therefore outside the Parliamentary scales.

At each railway station in the United Kingdom where goods traffic is dealt with there is a public rate-book, in which are recorded the rates to all points where there is likely to be traffic, so that it is not necessary to make a calculation every time goods are offered for transport, except in regard to quantity. Each station is also provided with a distance-book, containing a record of all the distances between stations on the home line, by means of which and the Parliamentary scale and working classification any new local rates may be made. When goods are offered for conveyance to some foreign station, to which no rate is in operation, the distance has to be estimated, pending the fixing of the rate by head-quarters, or the goods may be invoiced to the point of transfer with instructions to that station to invoice forward. The calculation of a new through rate is more complicated than that of a new local rate, because each of the interested companies is entitled to its full Parliamentary powers, that is to say, the sliding scale under which the charge per mile decreases with distance over twenty miles only applies within the territory of each company, and must begin over again as regards the distance over each separate company's line. What this means in trouble to the railway companies as regards the initial calculation, and afterwards in the case of deductions where errors have been made, also in explaining how the charge is arrived at to traders who have neither

[1] The charge per ton for cartage varies according to class, and London cartage charges are higher than provincial cartage charges.

the time nor inclination to master the details of railway rate fixing, may be gathered from the following example of a through rate taken from Mr. H. Marriott's recently-published book, "The Fixing of Rates and Fares" :—

EXAMPLE C.

SHOWING THAT SHORTEST ROUTE DOES NOT NECESSARILY GOVERN THE RATE.

Colne and London. Class 2—43s. 9d. per Ton.[1]

Distance by L. & Y. and L. & N.W. route ... 223½ miles.
„ Midland route ... ... 232 „

	Distance. M.	C.	Maximum Powers per ton per mile.		d.	Per ton. s.	d.
Colne to Ardwick ...	36	21	...20 miles	at	2·65	... 4	5·00
			16½ „	at	2·30	... 3	1·95
						7	6·95
Ardwick to London, *viâ* Crewe	187	17	...20 „	at	2·65	... 4	5·00
			30 „	at	2·30	... 5	9·00
			50 „	at	1·80	... 7	6·00
			87¼ „	at	1·50	...10	10·87
			187¼			36	1·82
Station terminal at Colne						... 1	6
„ „ London						... 1	6
Service terminals—							
Loading						... 0	8
Unloading						... 0	8
Covering						... 0	2
Uncovering						... 0	2
Amount added for Cartage						... 5	10
Total rate ...						...46	7·82

Although the throughout distance by the combined routes of the L. & Y. and L. & N.W. Companies, *viâ* Ardwick, is 8½ miles less than by Midland route, *viâ* Skipton, the charges according to Statutory Powers work out about 2s. per ton less by Midland route, owing to the calculation being made on one company's powers instead of the combination of two companies' maximum powers.

[1] Rate in operation calculated on distance by Midland route.

The full significance of the above example may be better appreciated by pointing out that if the Lancashire and Yorkshire and London and North Western route belonged to one concern the conveyance charge would work out at 1s. per ton less than the rate now in operation, which is based on the distance by the Midland route. From this it will be seen that, quite apart from any alteration in the basis for fixing charges, unity of control should automatically introduce a reduction of freight charges by giving freer play to the present sliding scale.

Rates calculated according to the Parliamentary scale are termed "class" rates, but it has been estimated that 75 per cent. of the country's merchandise traffic is now carried at special rates well within the Parliamentary maxima. The considerations taken into account in the granting of special rates are, in the words of Mr. E. A. Pratt: "(*a*) Volume and regularity of traffic between the points concerned; (*b*) weight per truck or per train which can be maintained by such regular traffic; (*c*) general earning power of the traffic; (*d*) liability or non-liability to damage; (*e*) competition, direct or indirect, by road, by water, or by any other means; (*f*) special requirements of shipping traffic to or from ports; (*g*) the creation of traffic by enabling new or increased business to be done; (*h*) a general consideration of what the traffic will bear."

The new scales and classification which came into operation on January 1, 1893, engendered new friction between the railways and the traders. The companies, finding that the revision amounted to an all round reduction, endeavoured to recoup themselves to some extent by putting up to the new scales certain special rates which were below them. The traders accepted the reductions which the new scales brought them, but protested strongly against the increases and continued to pay at the old special rates, deducting the differences from their accounts month by month.

The aid of Parliament was again invoked, and a Committee of the House of Commons was appointed to inquire into the way in which the railway companies had exercised their new powers. This Committee issued

its report in December, 1893, and made certain recommendations, which were embodied in another Act of Parliament passed the following year. The Act of 1894 was really an amendment of the Act of 1888, and the combined effect of the two Acts is that traders are provided with formal machinery for lodging complaints as to increases of rates with the Board of Trade. Failing arrangement of disputes as to rates between the railways and the traders through the medium of the Board of Trade, the matter may be taken before the Railway and Canal Commission—a tribunal created in 1873 for the adjudication of railway disputes, and it is laid upon the companies in such event to satisfy the Railway and Canal Commissioners that the increase in rates complained of is reasonable.

As a result of the Act of 1894 many disputes arising out of the action of the companies in increasing rates in operation prior to 1893 were arranged through the Board of Trade, and some were taken before the Railway and Canal Commissioners, but without any general settlement until the case of Smith and Forrest *v.* London and North Western and other railways, judgment in which was delivered in May, 1900. In this case the companies concerned had increased certain rates, either directly, or indirectly by withdrawal of allowances, by 5 per cent., and they attempted to justify such increase in rates by trying to show that there had been an increase in working expenses. After a prolonged trial the Commissioners decided that the companies concerned were entitled to increase the rates in operation before 1893 by not more than 3 per cent., provided the new maxima were not exceeded, and this appears to have been accepted as a general settlement by the railways and the traders of the disputes arising out of the rates revision.

Although the legislation referred to has made it almost impossible for the railway companies to increase charges in respect of goods traffic, and although 75 per cent. of the country's merchandise is carried at special rates well within the authorised maxima, the traders are not satisfied. It is contended that British railway

rates are still too high, and must be further reduced if British trade is to hold its own against foreign competition.

Before attention is called to some considerations which ought to be taken into account when comparing British with foreign railway rates, it should be stated than an indirect effect of the legislation of 1888 and 1894 has been to prevent reductions in rates. Subsection 6 of the Railway and Canal Traffic Act, 1888, reads: "Where a railway company intend to make any increase in the tolls, rates, or charges published in the books required to be kept by the company for public inspection under sec. 14 of the Regulation of Railways Act, 1873, or this Act, they shall give by publication in such manner as the Board of Trade may prescribe at least fourteen days' notice of such intended increase, stating in such notice the date on which the altered rate or charge is to take effect," &c. The Railway and Canal Traffic Act, 1894, provides that the Railway and Canal Commissioners shall have jurisdiction to prevent any increase of rate at all unless they are satisfied by the railway company that the increase of rate is reasonable. It will perhaps be as well if the exact words of Sir George Gibb are given on this point. In his evidence before the Board of Trade Departmental Committee, previously mentioned, he stated: "Now the combined effect of these two provisions unquestionably tends to prevent railway companies making experimental reductions of rates. On the face of it, it is only a question of raising the rates there, but when you are considering whether you can reduce a rate experimentally you may not be quite sure whether the experiment is going to succeed or not: and you have always before you the difficulty that if you reduce you may have to go through all this process of advertising a subsequent increase, although you may be only going back to the figure from which you reduced, or perhaps only partially doing so. I know of my own knowledge and my own experience that the effect of these sections has been to prevent many reductions of rates that would have been tried experimentally."

No one, not even managers of British railways, will

deny that British railway rates are higher than in most foreign countries, and that they might be substantially reduced, apart from the legal difficulty just mentioned, were it not for the extravagant character of the administration. British railway rates are certainly too high to the extent of the waste due to unnecesssary competition and diversity of management, and for this Parliament is primarily responsible. What this waste amounts to in figures no one can pretend to say. All that can be claimed with safety is that there would be substantial savings if competition were abolished, the amount of which would depend upon the approach of the new conditions to a complete unification of the whole railway system of the kingdom.

The above considerations apart, there are several points in relation to comparisons between British and foreign railway rates which, in fairness to British railway enterprise, should not be overlooked. No criticism can be described as fair unless it is willing to meet the whole truth, and it is to be feared that many denunciations of British railway management have, to say the least of them, displayed indifference in this respect.

The first difference between British and foreign railways, which has an important bearing on the question of charges, is in the cost of construction. British railways have a capital charge per mile more than double that of any other country except Belgium and France. The following table shows the capital per mile for the countries named :—

Country.	Capital per Mile.	Year.
	£	
Austria	22,523	1902
Belgium	31,537	1901
Canada	12,232	1902
France	25,320	1900
Germany	20,825	1902
Italy...	22,670	1901
United Kingdom	46,383[1]	1902
United States	12,588	1902

[1] Less nominal additions.

If the great difference between the cost per mile of British and foreign railways represented real value there would be nothing to complain about, but unfortunately this is not the case. The excessive prices paid for land, especially in the early days of British railway enterprise, and heavy legal expenses, are responsible for a large part of it. In one case a Committee of the House of Lords ignored the evidence for a railway bill and declined to pass it unless the estimate for land were raised from £250,000 to £750,000. Then, again, Great Britain being the pioneer country in railway enterprise had to bear the cost of experiments. The notion that a locomotive would not be able to haul trains except on the level was responsible for prodigious and costly engineering feats. Experience proved that a great deal of this cost was unnecessary. There was also the battle of the gauges, which resulted in the victory of the narrow gauge and rendered useless a large portion of the expenditure on broad gauge lines in the shape of cuttings, embankments, tunnels, viaducts, &c.

The total railway mileage of the United Kingdom includes a greater proportion of double and quadruple track than the mileage of other countries. Double track was almost habitually laid from the beginning, and, although it may have been justified in most cases, there is no doubt that single track might have served in some cases.

British railways have been more elaborately constructed throughout than foreign railways. It is a standing joke with Americans that British railways were built for eternity. In the United Kingdom there are viaducts and bridges where under similar circumstances America and even Germany have level crossings. What this has meant in the alteration of levels alone, apart from the cost of the viaducts and bridges, may be imagined. Again, the road bed itself is of more solid construction in the United Kingdom, and there is a greater bearing area of sleeper to a given weight of rail than in other countries. Further, the rails are laid between chairs, instead of being spiked direct to the sleepers as in America and Germany.

The solid construction and general excellence of the British permanent way finds a sequel in the greater safety of travel and in less frequent minor accidents as compared with foreign countries.

During the year 1906 5,000 passengers were killed and 76,000 injured on the railways of the United States. In the United Kingdom the figures for the corresponding period were (including railway servants) 1,180 persons killed and 18,236 injured, and this notwithstanding that 400 million more persons were carried by train in this country than in the United States.

With regard to German railways the following quotation from the report of Mr. T. R. Mulvany, British Consul at Dusseldorf, to the British Foreign Office in 1898 may be of interest :—

"It would appear that the State railway authorities are awakening to the fact of the necessity of improvement in the construction of the permanent way, which is the inevitable result of the heavier class of locomotives and the higher speeds of traffic. Their attention has been repeatedly drawn to this matter by associations of engineers, men who long since saw that the rails in use were much too light to stand this additional strain ; but the danger of the present system has been especially brought home to them by the alarming number of fatal accidents which have taken place through trains leaving the rails, not only at points but on lines.

"If the permanent way is in fault, which it appears in a great measure admittedly to be, probably the reason is not to be found merely in the section and weight of rails, but in the mode of spiking them down direct on the sleepers without chairs and side wedges, as used in England, where the rails are said to be heavier ; possibly also, a sufficient amount of suitable ballast not being used, the roads are not elastic enough for high speeds."

Another important reason why British railway rates are higher than those of other countries, and one which tends to be overlooked, is that British railways do more for the rate than foreign railways.

Most British rates for the conveyance of goods include

the services of collection and delivery and a free period of warehousing. British railways also give more frequent services, which, in conjunction with the free period of warehousing and a further period of warehousing at a nominal charge, enables traders to employ their capital to better advantage than would be possible under foreign conditions. A detailed description of the sundry services which British railways render to the trading community has been given by Mr. E. A. Pratt, who devotes a special chapter to the subject in "Railways and their Rates."

British railway rates appear to compare unfavourably with foreign ones owing to the shortness of the average haul in this country. As we have seen, a railway rate is made up of two portions : (*a*) a charge for conveyance, which varies with distance; (*b*) a charge for terminal services, which does not vary with distance. The specimen rates given on page 97, with the addition of 4s. for the services of collection and delivery added, may be reproduced here to illustrate the point under notice :—

	s. d.	s. d.	
Rate for 1 ton 10 miles, including collection and delivery	11 11	or 1 2	per mile
Rate for 1 ton 200 miles, including collection and delivery	39 4	or 2½	„ „

The explanation of the lower charge per mile in the case of the 200 miles haul is partly due to the sliding scale, under which the cost per mile diminishes with distance, but mainly because the terminal charges, which amount to 9s. 4d. in each case, are divided by 200 for the long haul and by 10 for the short haul. There are only two sets of terminal services per journey whether it be long or short. From this it follows that the charge per mile must decrease with increased distance, quite apart from any sliding scale, and that the railways of the country with the longest distances, especially if they perform few terminal services, should show the lowest rate per ton per mile. In Germany the distances are naturally longer than in Great Britain, and the rate per ton per mile is bound to be less on that account. In America

distances are greater than in Germany, and American freight rates are consequently the lowest in the world measured by the distance standard.

A further consideration which affects the comparison of British and continental railway rates is the competition between German, Belgian, Dutch, and French ports for the trans-continental traffic to Great Britain. Produce from the countries of Southern Europe to Great Britain by rail may travel *viâ* the ports of any of the countries mentioned, and the shortest distance governs the rate. If the German ports of Bremen and Hamburg are to ship any of this traffic, the German State railways must carry it from their southern borders to those ports at rates which will not cause the through freight to Great Britain to exceed the through freight *viâ* the ports of other countries. Traffic carried from (say) Italy through Germany to Great Britain instead of through France, at rates based on the distance by the latter route, must therefore be carried at an exceedingly low figure per ton per mile. To take an ordinary British rate, which includes collection and delivery and other sundry services, and which refers to a much shorter haul, divide the distance into the rate, compare the charge per mile with a trans-continental rate, and suggest that the difference between the two represents the difference between British and foreign railway charges, is obviously unfair.

Similar in effect as regards comparison are the German export rates. German railway rates for the conveyance of goods are arranged to supplement the tariff against foreign goods, *i.e.*, to encourage exports and discourage imports, so that the rate for the same weight and class of goods between a German port and an inland manufacturing centre will be higher for imports than for exports, and people who wish to show up British railway charges naturally select an export rate for their purpose.

Against all the foregoing reasons why British railway charges should be higher than those of other countries, there is one factor which should operate to make charges lower in this country than anywhere else in the world, and that is quantity and quality of traffic. Railway

charges should tend to be lowest in the country with the richest and most numerous population. The greater the number of units available the less per unit should be the cost of carriage. The quantity and quality of the actual and potential traffic units of Great Britain afford solid ground for the opinion that the cost of transit per unit for both passengers and goods should be lower in this country than anywhere else in the world.

CHAPTER IX

THE COMPLAINT OF UNEQUAL AND COMPLEX CHARGES

When Bismarck recommended the purchase of the German railways for the Empire it is said that he laid down as principles for the railway tariff (1) that it should be clear and so drawn up that any one could calculate freights; and (2) that all inhabitants in all parts of the country should be secured equality of charges.

It is a matter of history how, having failed to get control of the whole railway system of the German Empire, Bismarck obtained possession of most of the Prussian lines and put his ideal railway tariff, which took the form of equal mileage rates, into operation, and how the logic of experience compelled its modification.

It is not necessary to show the evolution of the present complicated German railway tariff, which has brought into existence a class of professional experts whom the trader must consult before he can be quite sure he is getting the cheapest transit. It will suffice to prove that under the system of basing charges on distance, now in operation throughout the world, equality and simplicity of railway charges are impossible.

With the distance basis for fixing charges uniformity implies equal mileage rates. Equal mileage rates mean that if the rate for a certain class of goods was fixed at 3d. per ton per mile it would be 2s. 6d. for 10 miles, 25s. for 100 miles, 50s. for 200 miles, and so on. If such a system were put into operation thousands of producers who send their goods long distances would be shut out of their present markets, and the consumers who now purchase in those markets would be placed at the mercy

of a limited number of producers. Such a system would encourage local trade despotism, produce scarcity, and eventually lead back to the isolation and parochialism of pre-railway days. The function of transport is not to limit but extend the area of supply, and as far as possible to render the whole of the country available for the whole of the people.

The development of the resources of the United Kingdom, so far as it has gone, may be measured by the extent to which the principle of basing railway charges on distance has been violated or, in other words, by the extent to which, judged by the distance standard, inequalities and complexities have been introduced. Every violation of the distance basis for calculating charges extends the area of business and tends to develop fresh resources, but, so long as distance continues to be reckoned as a standard, must create fresh inequalities and complexities.

If the system of basing charges on distance must be retained, equality and simplicity can only be had by checking the development of the Kingdom and disintegrating instead of consolidating the State. If the distance basis can be dispensed with—and economic pressure is working in that direction—uniformity and simplicity of charges, with a better all round development of the country will follow.

Volumes of evidence might be quoted to show the impracticability of equal mileage rates. Whenever Parliamentary Committees have considered the question they have been unanimous in their condemnation of the idea. All railway traffic officials know by experience, and all students of railway transport must know from a study of the facts, that equal mileage rates are impossible in practice. Why, it may be asked, should it be necessary, after so much consideration of the subject and such unanimous condemnation of equal mileage rates, to insist on their impracticability? The reason is that, with charges based on distance the inequalities, anomalies, and complexities necessarily introduced into the rates system are intolerable and produce perpetual unrest. One of the most vital requirements for the community of

commerce is a stable and uniform system of freight charges, but the British system of railway charges—and what is true of Great Britain is true of other countries—is a mass of contradiction and injustice. It cannot be too often and too strongly asserted that with the retention of the distance basis for fixing charges there cannot be any remedy for this confusion. Every exceptional rate granted to develop business—and there are hundreds of millions [1] of exceptional rates in operation on English railways at the present time—brings into existence a whole brood of fresh inequalities and anomalies. If the most is to be made of the railways of the United Kingdom in the interests of the general public, a way of escape will have to be found out of the present railway rates confusion. There is one way, and that is the complete abolition of the distance basis for fixing charges.

Although the Parliamentary scale for fixing goods rates recognises the necessity for deviating from a strict mileage basis and allows reductions per mile with increasing distance beyond 20, 30, and 50 miles, the rate discriminations of which the traders complain arise out of special rates within the Parliamentary scales voluntarily conceded by the companies to develop business which the authorised rates would have prohibited.

The railways, in making these reductions, have simply been following the economic law of their own well-being, which up to a certain point coincides with the well-being of the public. The superlative degree of railway prosperity, assuming the prospect of business development, is as a rule more easily attained by low rather than high charges, and that is the sole reason why reductions in rates are made. The full employment of the capital resources of the line is the goal towards which every intelligent management must press to gain the maximum financial result, and the achievement of this end is bound up with the prosperity of the districts through which the line runs. Wherever there is a reasonable prospect of creating new business by doing so reductions in rates are

[1] Evidence of Mr. J. E. Hennell (Great Western Railway) before Board of Trade Departmental Committee on Agricultural Rates.

made, unless the law stands in the way. It will be seen, when the nature of railway expenses are examined further on, that every reduction which is a means of calling new business into existence, and which leaves a margin over the expenses of moving the traffic, assists rather than injures other business. The recognition of this law of railway economics by the managers of British railways has rendered obsolete many of the Parliamentary rates designed for the protection of the public from the tyranny of railway monopoly.

As already stated, about 75 per cent. of the goods traffic of the United Kingdom is carried at special rates, *i.e.*, at rates which represent substantial reductions from the authorised maxima. The general manager of the South Eastern Company stated recently that at least 90 per cent. of the produce of that company was carried at these exceptional rates. It is in connection with these rates that the discriminations so obnoxious to popular ideas of justice arise. Traders do not understand why special rates are granted in some cases and refused in others where the circumstances are practically similar. When told that one rate is determined by competition and another is not, or that in one case the charge represents part of a throughout rate made up of sea and rail freight while another is wholly rail freight, their natural retort is, "If the railway can afford to carry a ton of goods for one trader 100 miles from A to B for 30s. they ought to carry a ton of the same kind of goods for another trader 100 miles from C to D for 30s.," and the refusal of the railway to do so becomes a standing grievance. This kind of anomaly multiplied a million-fold explains the never-ending discontent in regard to railway rates.

Logic of a similar kind led the State of Wisconsin in 1874 to pass what was known as the Potter Law, under which all railway charges were put down to competitive figures, with the result that none of the lines in that State were able to pay a dividend, and facilities were so affected that the very men who had passed the law in 1874 hurriedly repealed it in 1876.[1]

[1] Hadley, "Railroad Transportation."

Rates granted to encourage long distance business, it will be understood, must be a fruitful source of complaint, as they depart very considerably from the distance standard as applied to short distances, but competition by rail and water is the main cause of rate discriminations. Take an example. If the distance between A and X is 50 miles by one railway and 70 by another, the line with the 70 miles route will have to charge the same rates between A and X as the line with the 50 miles route, or it will get no business between those points. It cannot fix rates between A and X, which is 70 miles, on the basis of 50 miles without creating a set of inequalities and anomalies in respect of the intermediate places. Thus B, which may be 60 miles, and C, which may be 55 miles, from X; V, which may be 60 miles, and W, which may be 55 miles from A, will all complain; and, although the railway company will point out that the rate from A to X is determined by competition, it will convey little satisfaction, as the difference in charge, other things being equal, must inevitably tend to drive business away from B, C, V, and W, to A. and X.

A brief glance at the nature of railway expenses is necessary if the enigma of discriminating rates is to be better understood.

Railway expenses are roughly of two kinds: (1) Fixed charges (which according to Sir G. Gibb amount to about 41 per cent. of the total expenses) and interest on capital. These do not vary with quantity of business. (2) Movement expenses, which vary with the amount of work done, although, as previously pointed out, these expenses remain practically stationary between the first traffic unit and the full capacity of each branch of the machinery.

As the proportionate contribution of any patricular new business towards fixed charges and interest cannot possibly be allocated, it follows that a goods manager in fixing a special rate must first cover the movement expenses of the traffic and afterwards get as much as he can within the authorised maximum towards fixed charges and interest. Any rate which pays above movement expenses is a paying rate, provided the business

cannot be had on any other terms, and that the company has resources which would not otherwise be utilised. Within the limits imposed by the cost of moving the traffic on the one hand, and the legal maximum on the other, the principle of charging what the traffic will bear is brought into play to provide the revenue to meet fixed charges and interest, and it naturally happens that some traffic pays more and some less than a due proportion in this respect. If fixed charges and interest are taken into account there is not the slightest doubt that a great deal of goods traffic is carried at a loss, and that such loss is made good by the extra taxation of other traffic.

Where such a state of things exists through railway competition it is an unnecessary evil, but where it is due to water competition it is difficult to see how it could be avoided.

Discriminations arising out of charging what the traffic will bear may be granted in favour of localities distant from consuming centres to enable them to compete with less distant localities ; in favour of districts which have the advantage of rail or water competition ; and in favour of bulky articles of low value like timber and coal. If these discriminations were not applied, distant localities would be excluded from their present markets and remain comparatively undeveloped, while the consuming centres would suffer from a restricted source of supply. As regards competition, railways are bound to yield to its pressure, and, although by combination they may reduce rail competition to a minimum, they are forced to carry goods at low rates in competition with water routes. If low rates were not charged for timber and coal and raw material, building operations and manufactures would be retarded. Discriminations in respect of distance and articles of low value are therefore allowed in the Parliamentary scales.

Discriminations in favour of persons in the same trade for "similar services"—a term which legal construction has somewhat restricted in meaning—between the same points are illegal, although if they were permitted in exceptional circumstances less would probably be heard of large quantities of fruit in plentiful seasons rotting upon

the trees of remote districts owing to prohibitive railway rates. As matters now stand, such produce cannot get to market because the law will not allow the railway companies to carry it at a sufficiently low rate without making them liable to reduce other rates. If the system of basing charges on distance is maintained, this is a difficulty which State ownership could scarcely overcome, for in that case the jealousies of intervening districts would step in and prevent the discrimination. Mr. E. A. Pratt gives an example from Germany which well illustrates this point. Owing to prohibitive railway rates, the farmers of Eastern Prussia were unable to send grain to the industrial centres on the Rhine except by circuitous water transit *viâ* the Baltic, the North Sea, and the Rhine. Crop failures in 1891 induced the Prussian Government, in the interests of the population of the Rhine provinces, to reduce the rail charges, but in 1894 the pressure of the intermediate and nearer districts which were being subjected to this new competition was brought to bear upon the Government and the facility was withdrawn. This incident also serves to show the economic drawbacks of the distance basis for fixing transport charges. If there had been no water transport the effect of that system of fixing charges would have been to render Eastern Prussia non-existent as a food-producing region. With the distance basis development implies discrimination.

The theory that rates should be based on cost of service and should vary only as cost varies is impossible in practice for two reasons: (1) There are no means of ascertaining the total cost of any particular service; (2) there is a large quantity of traffic which can only afford a small contribution to fixed charges and interest, and which would not be carried at all if any approximation to cost were applied. If such traffic were not carried, its contribution to fixed charges and interest, although small, would fall upon other traffic now relieved to that extent, and a twofold injury would be inflicted upon the community. Intelligently and equitably applied, the principle of charging what the traffic will bear is defensible on both economic and moral grounds, as it

develops business which would not otherwise be developed, protects the public from local tyranny, and is a means of adjusting burdens where they can best be borne. In the hands of a railway manager hard pressed for funds, and harassed by costly and unnecessary competition, it is liable to serious misapplication, which is a strong reason why railway companies should have as little excuse as possible for obtaining revenue by any but open and fair means.

CHAPTER X

THE COMPLAINT OF FOREIGN PREFERENCE[1]

WATER competition is a disturbing element in the fixing of railway rates. Water transit is much cheaper to maintain than rail transit, and the services of coasting steamers and inland navigation come into active competition with the railways at many points, forcing them to grant reduced rates or forego business.

Competition between ports is another disturbing factor. For example, if the ports of Hull and Grimsby are to compete with Goole as regards traffic for Leeds, there must be a similar rate for all three ports, and the shortest distance will govern the rate. Add to the competition of the ports in this case the fact of water competition all the way to Leeds by means of the Aire and Calder navigation, and some idea of the situation may be obtained. The North Eastern and Great Central companies, to secure any business, must grant exceptionally low rates from Hull and Grimsby respectively, which it would not be fair to compel them to apply proportionately throughout their systems. This point may be further illustrated by quoting from evidence given by the general manager of the Great Northern railway :—

"Mr. Bullen complained that whilst the scale of 3s. 3d. per ton plus 1d. per ton per mile is applied on the Great Northern railway between local stations, it is not applicable between Hull and Newark, a lower rate being given in that case. Between Hull and

[1] The evidence referred to in this chapter relates to the last Board of Trade Departmental Inquiry respecting rates on agricultural produce, &c.

Newark there is very keen water competition, and even with the present very low rate of 6s. 8d. per ton for barley the railway companies, or at any rate the Great Northern, only carry a very small proportion of the total traffic. The distance from Hull to Newark *viâ* Lincoln is 68 miles, and it is only 53 miles from Goole, which port, together with the water competition by the Trent navigation, governs the rate. If they were to fix the rate according to a mileage rate the Hull rate would be very high, and there would not be any Newark traffic going from Hull, as it would all go to Goole, that is, supposing there was no water competition *viâ* the Trent; but there is, and it is water competition which has to be taken into account in fixing the rate."

The most fruitful source of complaint against British railways is the alleged charging of preferential rates on foreign produce to the detriment of the home producer, and there is a common impression that if the State took over the railways these anomalies would cease. The persistence of such an impression, in spite of all that has been said upon the subject, is extraordinary. It has been demonstrated beyond reasonable dispute and confirmed by experience in other countries—notably Germany—that uniform mileage rates (the only way of abolishing preferences so long as distance continues to be the basis for fixing charges) must limit the earning power of railways; that in this country they would increase and not diminish the difficulties of the home producers and would generally retard progress.

The conditions in regard to the carriage of foreign produce are altogether exceptional. It is questionable whether any reform of railway rates could immediately remove the disadvantages which home producers suffer as compared with foreigners in this respect. The only effective remedy would be the better agricultural development of the United Kingdom, and this depends upon a system of transport and transport charges that will bring the people and the country's resources more closely together. An elastic transport system, with minimum charges per unit for both passengers and

goods irrespective of distance, would be the finest weapon against foreign competition. Such a reform could not fail to have a beneficial effect upon the quantity and quality of the nation's food supply.

The industrial development of Great Britain having, in conjunction with transit charges based on distance, concentrated the population in comparatively few centres and made them dependent on foreign sources for the greater portion of their food, it follows that there is a large volume of produce conveyed between the principal ports and the inland centres of population. Home produce is conveyed to the same centres, but in smaller lots and from a greater number of points, so that one difference between the freight charges for foreign and home produce corresponds to the difference between wholesale and retail prices and volume and regularity of traffic between few points as compared with smaller and less regular lots between many points. The evidence of Sir George Gibb may be quoted on this point:—

"We carried from North Eastern stations to all stations in the year 1904, 561,728 tons of grain. Of that total 295,835 tons were carried from ports, and although some home-grown traffic is carried from ports and thus gets the benefit of any low rates which may exist, the bulk of the tonnage no doubt would be foreign imported grain. Out of the total of 295,835 tons carried from ports, 269,222 tons, or 91 per cent., was carried from two ports, namely, Hull and Newcastle. From Hull we carried 182,419 tons and from Newcastle 86,803 tons, making together the 269,222 tons. So you will see that practically our carrying of foreign grain was from two ports, Hull and Newcastle. The places to which we carried it would be places all over the North Eastern system round Newcastle and round Hull, and also to places beyond the North Eastern system. Now, comparing these quantities with grain forwarded from stations on the North Eastern other than ports, the facts are as follows: The total quantity carried from stations other than ports was 265,893 tons, and that quantity was carried from 467 stations, averag-

ing 569 tons per station in a whole year. Now just imagine the difference between carrying 269,222 tons from two points and 265,893 tons from 467 separate points. It is obvious from these tonnages and the enormous difference between the quantities carried through the ports and the quantities carried from local stations that the ports possess natural advantages so far as circumstances affecting the cost of carriage are concerned, and these advantages are not created, nor are they in any way controlled by the action of the railway companies."

The advantage of the foreigner in the matter of large consignments is aggravated by the conservatism of the British producer. Special rates for large quantities are already available, and it only requires organisation in the way of combining consignments to effect a considerable saving in the cost of transit. Some time ago the goods manager of the London and North Western company, having received a complaint as to rates from the local association of farmers, addressed a meeting at Newport (Salop), and in the course of his speech referred to a table he had compiled showing the actual payments made to the company by eighty-two farmers in the district. He pointed out that the difference between what had been paid and what might have been paid if the consignments had been combined amounted to 12 or 13 per cent.[1]

In some cases growers split up their own consignments and send them to different salesmen. The general manager of the South Eastern company gave evidence on this point as follows:—

"As regards agriculturalists combining, they have done very little in that way; and I think I may say the reason for that is that grower A is very jealous and does not want grower B to know where he is sending his stuff to. It is human nature, I suppose. A and B will not combine in sending by the same truck. They are very sharp, and if they think that one salesman will give them a better price they do

[1] "Railways and their Rates," E. A. Pratt.

not like so-and-so to know to whom they are sending their fruit. If they would combine it would be better for them, but in many cases we have found that, so far from combining, the growers themselves split up their consignments and divide them, sending their fruit to different salesmen in order that they may find out who gives them the best prices."

The foreign producers not only combine their consignments but study packing to advantage, whereas British producers are opposed to change. Here is the evidence of the goods manager of the London and South Western company :—

"Unfortunately, little co-operation can be secured from agriculturalists in this direction. This I would illustrate by the fact that recently a reduction of 25 per cent. was offered in the rates for strawberries from a certain district to London if the form of packing was altered from cross-handled baskets to boxes packed in crates. The growers declined to alter the form of packing, and the result of their refusal was not only to render the company quite unable to reduce the already low rates they were charging, but also compelled the company to expend no less than £1,000 in providing additional accommodation, which would have been unnecessary had the growers been prepared to pack their produce with a view to better loading in the vans being secured."

Where foreign produce is able to reach its market all the way by water, as in the case of the Continent to London and America to London, the conditions in its favour are even greater than those already mentioned ; and if British railways having ports on the direct line of route, such as Harwich, Southampton, Birkenhead, and Liverpool, are to handle it at all, it is evident that exceptionally low rates must be offered to intercept it. The produce comes in large quantities (usually train-loads), is cheaply and easily handled, and the companies possess the railway, rolling stock, and all necessary accommodation for carrying and dealing with it. Their expenses for interest and maintenance would run on if they did not take the traffic, therefore, to

refuse it at rates which, after paying movement expenses, contribute less than a due share to fixed charges and interest, would simply reduce revenue without reducing expenditure and compel them to seek additional revenue from the home produce. The foreign produce would get to market by water, so that the last state of the home producer would be worse than the first. Take the case of the American live cattle and meat traffic from Liverpool and Birkenhead to London, which is said to be worth 15 millions per annum, and the carriage on which will probably reach three-quarters of a million per annum. This is carried at a special rate of 25s. per ton in three ton lots, and the rate has been impeached for unduly favouring the foreigner. The evidence of the assistant goods manager of the Great Western fully explains the position in regard to this traffic :—

"With regard to the Birkenhead rate of 25s. it is given for a minimum of three tons per consignment, but without any minimum per truck. The traffic travels every day, and always in full train-loads from point to point. It goes straight to London. It is a very old rate, and I believe was put in force by the North Western and then followed by us before we agreed rates. It has been running for more than a quarter of a century. Undoubtedly it was given in order to secure the traffic to that port—to prevent the meat coming to London by water. The question for the foreigner is whether he shall send his meat to Liverpool or to London. If he had to pay a heavy railway rate from Liverpool or Birkenhead to London it would pay him better to ship direct to London, because it comes into the port in train-loads. It has often been a wonder to me that even that 25s. rate keeps it to Liverpool ; I think it is only because the traffic has been settled there so long, otherwise they would bring it direct to London even in the face of that railway rate of 25s."

It should be stated that all exceptional rates for port traffic are available for home produce between the same points and in the same quantities.

Another point in reference to rates on foreign produce is that the rail freight in Britain on such produce forms only part of its freight; that before reaching the British port it has paid foreign rail as well as sea freight, and that if the prices of home and foreign produce are not equalised at market, any disadvantage the home producer suffers must be due to causes other than railway rates.

British traders frequently make the mistake of comparing rail charges which form part of a throughout rate from abroad with a purely inland all rail rate, and arrive at the conclusion that the less charge for the rail distance in the former case, as compared with the latter, constitutes a case of undue preference in favour of the foreigner. The evidence of the goods manager of the Great Eastern company will elucidate this point :—

"Mr. Dennis said that the rate from Antwerp to London for potatoes was 13s. 4d. and for onions 13s., the rate from Antwerp to Harwich for potatoes being 7s. 6d. and for onions 8s. 4d. Apparently, therefore, only 5s. 10d. and 4s. 8d. respectively are charged for the rail carriage from Harwich to London, whilst the local rate for both descriptions of traffic from Harwich to London is 7s. 6d. per ton. His figures are correct, but the deductions he makes from them are incorrect. He has deducted from the throughout rate from Antwerp to London the local charge that is made for sea freight from Antwerp to Harwich, and he has assumed that the balance must be the land carriage from Harwich to London. He might as well have taken the rate from Norwich to Ipswich and deducted it from the throughout rate from Norwich to London, and assumed that the balance is the carriage from Ipswich to London. It is nothing of the sort; it is part of a throughout rate."

Preferential rates on foreign imported goods are not peculiar to Great Britain. According to Mr. Grierson, a former manager of the Great Western company, they exist wherever railways have been developed. German and Belgian State lines convey coal for shipment at less rates than for home consumption, and all trans-continental traffic is carried at much lower rates than

domestic traffic. With regard to America a few quotations from Mr. J. L. Cowles's work, "A General Freight and Passenger Post," will be found interesting:—

"In 1893 Representative Ikert, of Ohio, testifying before the Ways and Means Committee of Congress, said: 'The German manufacturer can ship his goods from Germany to distributing points in the interior of the United States at a less cost than can the domestic manufacturer in New Jersey or Ohio!' At one time the rate on tin plate from Liverpool *viâ* Philadelphia and the Pennsylvania railroad to Chicago was 24 cents a hundred, while the rate from Philadelphia to Chicago on the same article over the same road was 28 cents a hundred.

"The record in the Texas and Pacific case lately tried before the Supreme Court of the United States shows that the rate per hundred pounds charged for the transportation on through bills of lading of books, buttons, carpets, clothing, and hosiery from Liverpool and London, *viâ* New Orleans, over the Texas and Pacific and Southern Pacific railway systems to San Francisco is 1·07 dollars. On the same kind of domestic articles carried, it may be in the same train, the transportation tax over the same railroads is 2·88 dollars from New Orleans to San Francisco.

"On foreign boots and shoes, cashmeres, confectionery, cutlery, gloves, hats and caps, laces and linens, the same blanket rate, 1·07 dollars a hundred pounds, is levied for transportation from these English ports to San Francisco, while upon similar American goods shipped from New Orleans to the same destination the railroad tax is 3·70 dollars a hundred. A more absurd system of taxation than this could hardly be imagined, and yet the majority of the United States Supreme Court (Justices Harlan and Brown and Chief Justice Fuller dissenting, however) has decided that it is both just and lawful, and that American railway managers may with perfect impunity continue to tax Americans three or four times as much as they tax foreigners for a similar service."

Preferential rates in favour of foreigners, although very

unsatisfactory to British producers, cannot be abolished or even mitigated if the distance basis for fixing charges is maintained. The present position is the natural outcome of the neglect of British agriculture and the consequent dependence of the nation on foreign sources for food, accentuated by our insular position, which gives the foreigner easy and cheap access by water to our principal markets.

CHAPTER XI

THE LINES OF A SOLUTION

THE arguments hitherto advanced in favour of the nationalisation of British railways have taken the line that great economies would be effected by unity of management and concentration of traffic. These economies would apparently entail the following consequences : (*a*) an aggravation of the problem of unemployment, as thousands of workers would be displaced ; (*b*) a less frequent train service ; (*c*) the pursuit of the savings and their ultimate capture by the economic law of rent. Further, the principal causes of the present dissatisfaction—namely, discriminating inland freight rates and preferential freight rates to foreigners—would remain and provide abundant opportunity for political intrigue. Uniformity of railway charges does not exist anywhere in the world, and if such a condition is impossible of attainment the nationalisation of British railways means the letting loose of the hitherto clumsy machinery of Government upon a business as complex as the commerce with which it must deal. Unless the business could be directed by permanent Commissioners, the Minister in charge of the railways would be subjected to the importunities of distressed industries and dissatisfied employés, to which would be added the pressure of conflicting local interests. It is difficult to conceive how, under such conditions, political considerations could be entirely ignored. The advantages involved in unity of management and concentration of traffic, both from the public and the railway standpoint, are, however, so many and obvious that it will be well carefully to inquire whether the commercial part of the railway business cannot be sufficiently simplified to bring it within that

class of undertakings which political economists agree may be efficiently managed by the State. If this can be done, and the social disadvantages implied in the displacement of labour and restriction of railway facilities mitigated by a system which would also defeat the economic law of rent and secure uniformity and elasticity of charges without loss of revenue, there will be provided an invincible argument for nationalisation. One possible solution of the problem carries the whole of these advantages save one—sufficiency of revenue, and it is probable that this would be ultimately secure.

"To the consumer," said Mr. Grierson, late of the Great Western Railway, "the ideally perfect state of things would be a tariff for the conveyance of merchandise based on the same principle as the 'penny post.' Commodities would be conveyed at a low price, and producers over an immense area would be able to send them to market. To the consumer it would be in every way desirable that all disadvantages of distance or geographical position should disappear." Apparently the obstacles which prevent the realisation of this ideal state of things are (*a*) the present diversified character of British railway administration, and (*b*) the uncertainty of sufficient business development to justify the abandonment of the present complicated system of fixing railway charges. The first of these obstacles would be removed by State ownership, but the second requires careful examination. Hitherto railway charges have been based on the principle that distance is an important factor in the cost per unit transported, and the complaints of discrimination made by the public have their roots in this idea. A little reflection and a study of the facts will show that this is a complete fallacy, and one which is responsible for all the manifold complexities of the railway rates problem. In the old pack-horse days, when only a very small quantity of goods could be transported per unit of transport, the cost of transport was determined by the cost of sustenance of man and horse, and this depended upon the time consumed by the journey. To have based transport charges on time would have led to delay; therefore it is easy to understand how the

principle of basing charges on distance originated. It was to prevent delay and ensure quick delivery. The very method which under those conditions was calculated to secure economy tends under modern conditions to encourage wastefulness. Railway charges based on distance, in the absence of competition by shorter routes, place a premium upon roundabout routes.

In the neighbourhood of Tadcaster, Yorkshire, may be seen an abandoned railway undertaking which would, if completed, shorten the rail distance from Tadcaster to York by at least six miles, and the distances from and to other places would also be affected. This undertaking could be completed and joined up with the North Eastern system at small cost, but it would not pay the North Eastern company to do the work because, if they did, they would be compelled to reduce charges. In another case a railway company a few years ago constructed a short stretch of line which reduced the rail distance between several populous centres and a seaside resort, but only excursion traffic is run over this length. To use the line for ordinary passenger traffic would render the company liable to reduce ordinary fares.

The idea that distance is an important factor in the cost per unit of passengers or goods transported is an inheritance from the past, when, owing to the limited number of units which it was possible to carry by the usual means of conveyance, distance was a fair measure of the cost per unit[1]; but under modern conditions of large steamships and long railway trains it frequently happens, as we have seen in the case of the foreign produce, that the cost per unit transported for long distances is less than the cost per unit for short distances, owing to the greater number of units carried per journey. That distance cannot measure the cost of railway transport is obvious from the fact that a few miles of line in the neighbourhood of a large city, or where there have been physical obstacles to overcome, may exceed the cost of fifty miles through a level rural district.

It may be urged that the running expenses of a train

[1] J. L. Cowles, "A General Freight and Passenger Post."

for a long distance are greater than for a short one, and that this justifies, to some extent, the principle of basing charges on distance, but here again the facts are against the present system.

The expenses for locomotive power in 1906,[1] including wages of drivers and firemen, were 11¼d. per train mile, so that the difference in cost between running a train 20 miles and 100 miles is 75s. If the train-load were 75 tons, this would represent 1s. per ton, and if 300 tons, which would be nearer the reality for a long distance goods train, 3d. per ton. When stops are taken into account the cost of short journeys approaches the cost of long ones, for stops take time and waste power; and it is not unreasonable to suppose, bearing in mind the better loads carried by long distance trains and the less frequent delays and stops to which they are subject, that the locomotive expenses per ton in the case of such trains may be less than for short distance trains. With regard to the locomotive expenses incidental to extra weight, it has been said that an English locomotive with a load of fifty tons behind it consumes 20 lbs. of coal per mile, and with 600 tons 60 lbs. per mile,[2] so that the variation in the cost per mile between two such trains is 40 lbs. of coal, or at the most 3d. per mile for the extra 550 tons.

Under favourable conditions (according to Professor Hadley) the actual running expenses are even lower. He states that on any line where a good canal can run a railroad can handle a net train-load of 600 tons at a direct expense for fuel, trainmen, and train repairs (that is, for expenses due to distance) of not over 40 cents, and sometimes as low as 30 cents a mile, or one-twentieth to one-fifteenth of a cent a mile per ton. In other words, the cost of the average haul in the United States—126 miles—in train-loads of 600 tons on such roads as the New York Central is not over 7 to 9 cents per ton for the whole of the 126 miles. With loads up to the capacity of their large locomotives (1,800 tons or

[1] The 1907 figures, since published, are fractionally higher, but do not affect the argument.

[2] W. M. Acworth.

more on the New York Central) the cost per ton is even less than these figures.

If an example be taken from the passenger service, the effect of the number of units in reducing the cost per unit is even more striking. A train is going from Manchester to London. If the fare is so high that only one person travels the cost per passenger is the total cost of the train. If the fare is so low that 600 persons avail themselves of the service the cost per passenger is the total cost of the train divided by 600. The total cost per train mile (not merely for locomotive expenses, but for everything except interest on capital) in the United Kingdom in 1907 was 3s. 4d., so that the total cost of such a train for 180 miles (Manchester to London) would be £30. The cost per passenger in the former case would be £30 and in the latter case 1s., and it would not increase the cost to the railway in the slightest degree whether part of the passengers alighted at Crewe or all went through to London. The only effect of stopping-places would be to increase the earning power of the train, for seats vacated at the first or subsequent calling-places would become available for other passengers who might wish to join the train at those stations. The accommodation in such a train is the number of seats it contains multiplied by the number of times the train empties on the through journey. With such a train it is clear that distance tends to diminish and not increase the cost per passenger.

The effect of the number of units in reducing the cost per unit transported by railway may be traced further. The total cost per train mile irrespective of interest charges, which in 1907 amounted to 3s. 4d., is determined by the number of train miles run. If the number of traffic units were so increased that it became necessary to double the train mileage, the working cost per train mile would be considerably reduced. There would be additional movement expenses proportionate to the additional trains, but there would be little, if any, increase of fixed charges until it became necessary to extend the permanent accommodation. The fixed charges, which do not vary with quantity and which,

according to Sir G. Gibb, amount to 41 per cent. of the total expenses, would then be spread over twice as many train miles. The ideal economy in railway transport is to increase fully loaded train miles.

Recently the energies of railway management in this country have been occupied with reducing the number of passenger trains as well as the number of vehicles per train. These economies represent transit facilities withheld from the community because the temporary interests of the private owners of the railway call for such a policy. From the point of view of the permanent interests of the railways as commercial undertakings this policy is open to question, for, as we have seen, a large proportion of the fixed charges as well as interest on capital will still have to be met. One would have thought that a bold policy of reduced fares in order to fill the trains would have been a better answer to the serious competition with which railways have now to contend. Withdrawal of facilities and maintenance of charges at present figures is a standing invitation to alternative means of transit. From the public point of view withdrawal of facilities, coinciding as it does with closer agreement between the railway companies, will intensify the conviction that private monopolies are inimical to the public good. Under public management the policy would not be to economise by withdrawing trains, seeing that the greater portion of the cost would be unaffected, but to attract better loads by reducing charges, and thereby get the best value for the money. Whether the railways are used little or much, and whether the management be private or public, it is well to remember that in some way the community have to pay the invariable cost.

The recognition of the fact that the number of units and not distance determined the cost per unit was responsible for the introduction of the "penny post." A low minimum charge per letter was adopted, irrespective of distance, and although the conveyance of goods may not be the same as the conveyance of letters, the difference is one of degree and not of principle. The conveyance of passengers, who are able to look

after themselves, presents less difficulty than the conveyance of letters. So far as the basis for fixing charges is concerned, what applies to letters applies to goods and passengers.

The railway companies for many years have been moving in the direction of the postal principle for fixing charges. Distance as a measure of cost per unit is already partially ignored in the case of special goods rates, especially in the grouping system and in tourist and excursion fares; therefore the application of the postal principle to railway charges would simply be the extension of a system already proved to be beneficial to the railways and the public to its logical completeness. Distance being, as we have seen, an inconsiderable factor in determining the cost per unit of railway transport, the cost of the longest journey is for all practical purposes no greater than the cost of the shortest journey, and the sole reason for charging more for the longer journey must be to obtain sufficient revenue, and if the same result can be achieved by increasing the number of units (which is the fundamental difficulty involved in this solution) the principle of basing charges on distance may safely be abandoned. How can the number of units be increased? Obviously by no better means than the adoption of low uniform rates and fares. As regards the passenger traffic, it may be said that because fares are high comparatively few journeys are made, and because few journeys are made fares are high. The same applies to freight, but here, it must be admitted, there is not the same prospect of immediate expansion.

The basis upon which fares and rates should be fixed can only be indicated, and would have to be settled after compilation and analysis of statistics, but attention may be drawn to the following facts as showing the feasibility of the idea: (1) the average passenger fare for the United Kingdom is 7d.; (2) the average rate for mineral traffic is 1s. 5d. per ton; (3) the average rate for merchandise traffic is 5s. 6d. per ton. To illustrate the principle, it might be possible to charge for passenger traffic minimum fares irrespective of distance of 2d., 6d.,

and 2s. 6d. respectively for (*a*) local stopping trains, (*b*) semi-fast trains, (*c*) through express services. For mineral traffic a minimum rate of 1s. per ton (or even less) irrespective of distance might be charged. In the case of general merchandise the matter would be more complicated. Statistics would have to be collected showing, amongst other things, the number of tons and the average rate per ton in respect of each of the ordinary classes into which the traffic is now divided, with a view to finding out whether the classes could be reduced in number without the sacrifice of much revenue and the most suitable minimum charge for each class. There would also need to be parcel and small consignment scales. When it is remembered that the principle of basing charges on distance is responsible for the existence of millions of passenger fares, and hundreds of millions of ordinary goods rates, with their consequent calculations and infinite possibilities of error, not to mention exceptional and discriminating rates which are enigmatical to all except railway experts; that time after time Parliamentary Committees have made exhaustive inquiries into the question of railway charges and tried in vain to set limits to the absurdities of the distance basis (the minutes of one Committee extend to 4,400 pages and record answers to 44,000 questions); that thousands of clerks are daily and nightly grappling with the confusion which this system entails; and that at the goods depôts and in the goods managers' and audit offices throughout the kingdom there are tons of correspondence relating to inquiries, discrepancies, disputes, and outstanding balances; that reams of letters are written about trifles, so that principles may not be violated—pounds being spent in some cases to clear up shillings—and much more detail too tedious to describe; that, worse still, the real function of the railways (that of getting passengers and goods from place to place quickly and efficiently) is being neglected to the extent of the means set apart for the regulation of this chaos of paper; that, last of all, the principle out of which all this confusion springs—that of basing charges on distance—has no rational basis whatever, and is only

employed as a means of obtaining revenue, it is not unreasonable to ask whether revenue cannot be obtained in some less complex and less expensive way.

The principal difficulty involved in the postal suggestion remains to be considered. Would such a scheme pay? The reasonable probabilities in regard to the passenger traffic appear to be that it would quickly respond and provide the requisite number of units to justify the low minimum fares, and, as the carrying capacity of the present services is not used to within at least one-fourth of its full extent, there would not be much extra expense involved in the increased business. It would simply mean that the community would be able to make the best possible use of its passenger facilities, which it cannot now do because of high fares. It is a commonplace that greater facilities beget increased traffic. According to the *Railway News*, the holiday traffic on thirty-six British railways for 1908 up to the second week in August was £244,000 more than in 1907 and £112,000 more than in 1906, which was a record year. This notwithstanding the great falling off in trade in 1908. The growth of the travelling habit finds further confirmation in the following figures :—

	Per cent.
Increase in population of United Kingdom 1897 to 1906	9·6
Increase in passengers carried by railway	20
Increase in passengers carried by tramway 1897 to 1905	100 (about)

The significance of these figures is enhanced by the fact that the last decade has witnessed the development of road motor traffic. Nor is this all. There has been an enormous increase in the number of railway season tickets, which has tended to check the increase in the number of ordinary passenger journeys. No comparison can be established between 1897 and 1906 as regards season tickets, but between 1902 and 1906 they increased by 17 per cent.

In regard to freight the response could not be immediate. An increase in the number of passenger

units per train would merely mean more journeys by the present population and the expenditure of the same amount of money as is now spent on travel, with the probable addition of an amount transferred from less desirable expenditure, whereas to obtain an increase in the number of goods units per train there would have to be a reduction in the number of trains pending the production of more goods and an increase in the spending power of the people. It is therefore necessary to consider (1) a temporary reduction in goods revenue due to reduced charges, and how far it might be balanced by reduction in expenditure; (2) the prospect of business development and increase of employment under the stimulus of the new conditions. To set off against the temporary reduction in revenue there would be certain savings due to—

(*a*) Simplicity of Accounts.—Collection of accounts and clerkage could be reduced to a minimum, as to a great extent charges could be made prepaid by means of freight stamps or coupons, for the sale of which, as well as passenger tickets, the machinery of the Post Office could be utilised.

(*b*) Unity of Management.—*viz.* (1) Reduction in the cost of direction, general management, and departmental management; (2) abolition of the elaborate processes relating to through arrangements, division of through receipts, and apportionment of joint expenditure; (3) savings incidental to uniformity of regulations and standardisation of equipment; (4) reduction in printing, advertising, and Parliamentary law costs; (5) abolition of town inquiry and ticket offices and canvassing expenses.

(*c*) Concentration of Traffic.—This would effect a great economy in rolling stock and movement expenses. There would also be fewer claims for goods lost, damaged, or delayed in transit owing to congestion caused by the presence of unnecessary rolling stock and extra manipulation of vehicles through diversity of ownership.

No estimate of the amount of savings from these various sources can be given, but it is evident that there

would be a substantial reduction in expenditure to set off against the reduction in revenue. It is probable that the normal growth of population and business alone, in conjunction with the better utilisation of the capital resources, would soon provide the necessary increase of units to make the reform financially successful.

The prospect of business development, which may now be considered, is simply the prospect of better employment for capital and labour at present expended unnecessarily in the railway business. Certain forces now engaged in work incidental to the movement of goods would be liberated for the production of goods, and the employment of these forces would depend upon the effect produced by the reorganisation and cheapening of the means of transit. Until the new conditions had taken effect there would be a temporary aggravation of the unemployed problem, and this would require serious consideration. So long as the performance of unnecessary work is a means of procuring subsistence its immediate abolition will always be attended with worse consequences than its continuation.

Stability, uniformity, and simplicity of railway charges as well as their cheapness, in conjunction with the elimination of distance, could not fail to have a stimulating effect upon business generally. Prospective transactions would be greatly facilitated. Principals and managers would be able to calculate the exact cost of freight involved in an estimate by reference to a simple table of charges, with the certain knowledge that all competitors would pay the same. Works and factories could be erected where land was cheap, and, owing to the low passenger fares, the supply of labour would present few difficulties. Agriculture, which suffers most from the present system of rate-fixing, would reap the supreme benefit from the introduction of minimum rates irrespective of distance, as the land monopoly, which is the real root of its distress, would be weakened, and the value of land, so far as regards geographical position, would tend to become equal over a wide area. Competition would inevitably ensue, as the practical elimination of distance would bring more land into the

market, and the economic law of rent would lose part of its natural advantage, with the result that there would be a better margin between rent and the selling price of produce. On the whole it does not appear to be an extravagant expectation that there would eventually be an accession of material prosperity sufficient to justify and make profitable the low minimum charges, arising out of the development of the country's natural resources, and their application to the wants of those who now go short.

CHAPTER XII

THE SOCIAL FUNCTION OF A RAILWAY SYSTEM

THE primary function of a railway system is social, and whether or not it be desirable to observe commercial principles in the management, there is always the danger when the management is not in public hands that the social function will be sacrificed. The whole of our railway legislation and Board of Trade regulations are a recognition of this fact. To what lengths the commercial spirit will go in railway matters if not checked is abundantly illustrated by American experience. Nowhere perhaps have railways done so much for civilisation as in the United States of America, but the operation of the commercial spirit in railway policy there, in the absence of adequate Government control, has assisted the concentration of wealth in comparatively few hands. Strong firms have had their goods carried at exceptionally low rates, and small traders have had to pay high ones and have been driven out of business. Professor Hadley says that the Standard Oil Company was fostered by a system of special rates until it became strong enough to dictate its own terms. Mr. J. L. Cowles gives the following examples from the *Arena* of October, 1895:—"A car-load of potatoes was shipped from Colorado to Chicago in the summer of 1895, and upon arrival at Chicago the railroads confiscated the whole load and went after the shipper for 28 dollars more. A gardener shipped thirty cases of green peas from Texas to Chicago by express. The peas sold on the market for 22 dollars; the express charges were 26½ dollars." This state of things is confirmed by other American writers, and Mr. A. J. Stickney in his "Railroad

Problem" attributes it to the fact that a railway manager finds it more convenient to deal with one man or one corporation than to deal with a number of individuals.

If it be contended that such things are impossible in the United Kingdom, and cannot affect the question of private *v.* public ownership here, there are at least three answers: (1) The trouble and cost of the preventive measures may outweigh the advantages of private ownership; (2) the operation of such measures does actually hamper legitimate business; (3) the usual effect of the law in such matters is to drive illicit transactions beneath the surface or transmute them into forms of compliance.

Both private and public ownership, so far as the railway business has hitherto been conducted, have disadvantages. The drawbacks of private ownership arise out of the fact that railways are naturally a monopoly, and cannot be made to properly fulfil their social function either by law or by competition, owing to the enormous waste of resources, to which attention has been called. Under State ownership the fear has been that commercial principles would be entirely ignored, and that the complexities which up to now have characterised the rates system would under political dictation produce confusion worse confounded. If the social function of the railway system is of paramount importance, the best solution would appear to be State ownership and the simplification of the tariff in such a way that the proverbial red tape would have little to play with, and the opportunities for political intrigue be reduced to a minimum.

It is open to question, however, whether any form of administration on strict commercial lines could effectively realise the social function of the railways. As we have seen the interests of the private owners of a railway may coincide with the interests of the community and a better profit be made by low than by high charges; but there comes a point when, although a further reduction of charges would increase the number of traffic units, there is no certainty that it would increase them sufficiently to maintain the profit. It is then that public good is subordinated to private gain. This difficulty could scarcely be met by legislation without inflicting injustice upon the

railway proprietors, who cannot be expected to regard their capital in any other light than that of a commercial undertaking to be directed within the law for their own sole benefit. Any good which accrues to the public is, so far as the railway proprietors are concerned, a secondary consideration. Professor Hadley, whose writings show a strong bias against Government ownership of railways, gives the following example: "Suppose that the expense of loading and hauling each additional car-load of wheat from A to B is 10 dollars. Present rates are 15 dollars, and at that rate the road obtains 1,000 car-loads a week—gross earnings, 15,000 dollars; profit above operating expenses, 5,000 dollars. The question comes up whether they shall reduce to 13 dollars. If by so doing they can double their traffic and get 2,000 car-loads, it will be good policy; they will make gross earnings 26,000 dollars; expenses, 20,000 dollars; profit, 6,000 dollars. If it only increased the traffic one-half it would be bad policy—giving gross earnings, 19,500 dollars; operating expenses, 15,000 dollars; profit, 4,500 dollars." In giving this example Professor Hadley is of course writing from the railway standpoint, but viewed from the public standpoint it has great significance. Assuming it happened in practice, it means that the community would be poorer, and that food would be dearer to the extent of 500 car-loads of wheat per week, because it would not pay the railway to carry it. From the public point of view it would pay to carry the wheat at a loss, because the loss incurred in the carriage would be more than balanced by additional wealth. The familiar argument that the private conduct of commerce economises public wealth breaks down entirely when applied to the business of transport, for beyond the point where it will not pay private enterprise to encourage transport it would pay the community to do so. Professor Hadley himself, as we have seen, justifies the exemption of grain and coal from an equal contribution to the cost of transport, on the ground that such a contribution would mean dear food and dear fuel. In order to ensure the cheapening of these social necessities, he supports the principle that even private owners of railways should be allowed powers which in effect are

similar to those exercised by the State, that is, the power of adjusting taxation to suit the needs of the community. Once this principle is admitted the question arises, "Why not extend it with a view to realising more fully the social function of the railway system?"

Whether or not under State management the tariff for the use of the railways should be expected to provide the whole of the maintenance and interest charges as at present is an interesting point. There appears no sound reason why the upkeep of the railways, like the upkeep of roads, should not be met out of public taxation. Railways have precisely the same social function as roads—they are part of the circulating system of the body politic—and the considerations which justify the public maintenance of roads are equally applicable to railways. Moreover, the application of this principle would so cheapen the cost of transport by rail, as compared with the cost of transport by road, that road motor vehicles would find their true place in the national economy instead of usurping the function of the railway system. As matters now stand, through the introduction of road motor vehicles one type of national highway is being subsidised at the expense of the other, and the whole transit system of the kingdom is in danger of disintegration. The nationalisation of the railways, and the arrangement of the tariff—whatever system was adopted—so as to provide only that part of the cost of transport incurred in the specific movement and handling of goods and passengers, as distinct from the invariable cost, would place both types of highway on a similar footing. The railways would not be quite so free as the roads, but they would be as free as practicable, having regard to their special character.

Considering the extent to which our present social problems are due to the localisation of industry and the immobility of labour, the provision of cheap transportation would appear to be an essential condition of social reform. Improvements in machinery are displacing labour faster in manufactures than in agriculture, and are creating such a surplus of labour in towns that there must be increased unemployment and more in-

tense competition among the workers, leading to wages that fall below the requirements of subsistence. The ideal solution of this problem would be the absorption of the surplus labour in the production of food, and this implies "back to the land"; but "back to the land," as now understood, means isolation from social intercourse. One of the causes of the movement from the country to the towns is the desire for change. The country is desolate and there is little or no congenial society, but in the great towns and cities are to be found those things which minister to the hunger of the human mind. What is urgently needed is a reform which shall bestow the physical advantages of country life and some of the advantages of town life, and this cannot be realised apart from a reorganisation and cheapening of the means of transit. Transit reform thoroughly carried out would assist the better regulation of capital and give mobility to labour, with the probable result that much unemployment would find relief on lines of useful production instead of in ways which tend to dissipate the resources of the nation.

Under scientific and unified management the railway system of the United Kingdom could be made to supplement the education of the people, and in the satisfaction of the expanding intelligence of the people lies the road to universal culture. The great evils of intemperance and gambling, the worship of paltry appearances, the quest for sensation in news and fiction, are in many cases unhealthy expressions of the quenchless impulses of life at war with the pitiless monotony of modern industrial conditions—impulses which neither prohibitive measures nor penalties can alter or subdue, but which, with the provision of more salutary media, might be more happily translated.

Hampered as they have been in the past, railways have nevertheless been a great civilising force, and it is of the utmost importance that their use should be encouraged. The whole story of civilisation, indeed, is inseparable from the history of the means of transport and communication. While the rest of the world slumbered in unconscious barbarism there sprang into

existence on the banks of the great rivers of Egypt and Mesopotamia, China and India, civilised communities, whose rise and progress it would be difficult to explain apart from the cheap and easy means of communication afforded by navigation. When the human race advanced from the river to the ocean stage the wider scope of transit made possible the more catholic civilisations of the Mediterranean, and the combination of water transit with land transit by means of her famous roads assisted to establish the world supremacy of Rome. The long eclipse which followed the decline of Rome was eventually relieved by the international commerce of the maritime republics of Italy, until at length, under the impetus of the epoch-making voyage of Columbus, civilisation was born anew. Columbus gave to Spain a wider field of operations beyond the Atlantic, which made her rich as well as powerful. Spain succumbed to a greater rival in the art of ocean navigation when Great Britain arose and inaugurated the most vigorous, the richest, and most powerful civilisation the world has yet seen. The vitality and richness of Anglo-Saxon civilisation is founded upon international commerce, the explorations, adventures, and travels of British citizens in all parts of the globe. The development of the North American continent in the nineteenth century is explained by the construction of 200,000 miles of railway. Nothing in the history of civilisation is more remarkable than the faith shown by the American nation in the possibilities of transport. Thousands of miles of line were constructed across uninhabited prairies in the belief, which has been abundantly justified, that means of transit would be the prelude to abounding prosperity. Before the introduction of railways into America those natural barriers, the Alleghany and Rocky mountains and vast distances—obstacles the like of which in the Old World have been responsible for a thousand babel tongues and systems—were assisting the evolution of separate nations, but the advent of railways changed the course of communication and development and welded North America into practically one nation speaking one language.

It is not extraordinary that so many modern inventions should have been of Anglo-Saxon origin, and that Britain should have produced such reforms in the means of communication as the steamship, the railway, the "penny post," and the telegraph, and it would be equally appropriate if Britain were the first nation to effectively realise the social function of a railway system. The social function of transport is finely summed up in a United States Government Report on Pacific railways issued in 1869 :—

"The highways of nations are the measure of their civilisation. Without roads there can be no society, government, commerce, or intelligence. In exact proportion to the abundance and excellence of highways (and in exact proportion to the cost of transportation on those highways) are the exchanges of services between men, the communication of thought, the augmentation of wealth, the growth of comfort, the development and consolidation of the civilised State."

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